IN THE CLAIMS:

1. (Currently Amended) A method for the explosive release of energy comprising reacting a deuterium or tritium hydrino hydride ion having a binding energy of about 0.65 eV, or a compound of said hydride ion, with a proton to produce ~~a~~ dihydrino molecules having a first binding energy of about 8,928 eV.

2. (Original) A method of claim 1 wherein said compound is a compound of lithium.

3. (Previously Presented) A method of making an explosion comprising:
reacting at least one hydrino hydride ion with protons to form dihydrino molecules and provide an explosive release of energy.

4. (Previously Presented) A method according to claim 3, wherein said reaction is initiated by energy from a percussion.

5. (Previously Presented) A method according to claim 4, wherein said percussion comprises colliding a projectile containing a source of said hydrino hydride ion and a source of said protons with an object with sufficient force to initiate said reaction.

6. (Previously Presented) A method according to claim 3, wherein said reaction is initiated by energy from detonation of an explosive material proximal to a source of said hydrino hydride ion and a source of said protons.

7. (Previously Presented) A method according to claim 3, wherein said reaction is initiated by heat energy.

8. (Previously Presented) A method according to claim 3, wherein said protons are

supplied by a source of said protons comprising an acid.

9. (Previously Presented) A method according to claim 8, wherein said acid is a super-acid.

10. (Previously Presented) A method according to claim 8, wherein said acid is selected from the group consisting of HF, HCl, $H_2SO_4$, $HNO_3$, the reaction products of HF and $SbF_5$, the reaction products of HCl and $Al_2Cl_6$, the reaction products of $H_2SO_3F$ and $SbF_5$, the reaction products of $H_2SO_4$ and $SO_2$, and combinations thereof.

11. (Previously Presented) A method according to claim 10, wherein said acid contains mainly $H^1$.

12. (Previously Presented) A method according to claim 10, wherein said acid contains mainly $H^2$.

13. (Previously Presented) A method according to claim 10, wherein said acid contains mainly $H^3$.

14. (Previously Presented) A method according to claim 10, wherein said reaction is initiated by a rapid mixing of said hydrino hydride ion with a source of said protons.

15. (Previously Presented) A method according to claim 14, wherein said source of protons comprises an acid.

16. (Previously Presented) A method according to claim 3, wherein said dihydrino molecules have a first binding energy of about 8,928 eV.

17. (Previously Presented) A method according to claim 3, further comprising decomposing a source of said hydrino hydride ion to provide said at least one hydrino hydride ion, wherein said source of said hydrino hydride ion comprising at least one compound comprising said least one hydrino hydride ion and at least one other element.

18. (Previously Presented) A method according to claim 17, wherein said compound comprises at least one hydrino atom having a binding energy of about $13.6/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

19. (Previously Presented) A method according to claim 17, wherein said compound comprises at least one dihydrino molecule having a first binding energy of about $15.5/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

20. (Previously Presented) A method according to claim 17, wherein said compound comprises at least one dihydrino molecular ion having a first binding energy of about $16.4/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1, and at least one other element.

21. (Previously Presented) A method according to claim 17, wherein said compound comprises a hydrino hydride ion having a binding energy of about 0.65 eV and at least one other element.

22. (Previously Presented) A method according to claim 17, wherein the compound further comprises one or more selected from the group consisting of ordinary hydrogen molecules, ordinary hydride ions, ordinary hydrogen atoms, protons, ordinary

hydrogen molecular ions, and ordinary $H^{3+}$ions; and said method further comprises decomposing said compound to provide said hydrino hydride ion and protons.

23. (Previously Presented) A method according to claim 17, wherein the compound has a formula selected from the group of formulae consisting of MH, $MH_2$, and $M_2H_2$ wherein M is an alkali cation and H is selected from the group consisting of increased binding energy hydride ions, hydrino atoms and dihydrino molecules, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

24. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MH_n$ wherein n is 1 or 2, M is an alkaline earth cation and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

25. (Previously Presented) A method according to claim 17, wherein the compound has the formula MHX wherein M is an alkali cation, X is one of a neutral atom, a molecule, or a singly negatively charged anion, and H is elected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

26. (Previously Presented) A method according to claim 25, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

27. (Previously Presented) A method according to claim 17, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide

said hydrino hydride ion.

28. (Previously Presented) A method according to claim 27, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

29. (Previously Presented) A method according to claim 17, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a doubly negatively charged anion, and H is a hydrino atom, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

30. (Currently Amended) A method ~~compound~~ according to claim 29, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

31. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2HX$ wherein M is an alkali cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

32. (Previously Presented) A method according to claim 31, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

33. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MH_n$ wherein n is an integer from 1 to 5, M is an alkali cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen

species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

34. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2H_n$ wherein n is an integer from 1 to 4, M is an alkaline earth cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

35. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2XH_n$ wherein n is an integer from 1 to 3, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

36. (Previously Presented) A method according to claim 35, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

37. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2X_2H_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

38. (Previously Presented) A method according to claim 37, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

39. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2X_3H$ wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

40. (Previously Presented) A method according to claim 39, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

41. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2XH_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

42. (Previously Presented) A method according to claim 41, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

43. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2XX'H$ wherein M is an alkaline earth cation, X is a singly negatively charged anion, $X'$ is a doubly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

44. (Previously Presented) A method according to claim 43, wherein said singly negatively

charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

45. (Previously Presented) A method according to claim 43, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

46. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MM'H_n$ wherein n is and integer from 1 to 3, M is an alkaline earth cation, M' is an alkali metal cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

47. (Previously Presented) A method according to claim 17, wherein the compound is $MM'XH_n$ wherein n is 1 to 2, M is an alkaline earth cation, M' is an alkali metal cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

48. (Previously Presented) A method according to claim 47, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

49. (Previously Presented) A method according to claim 17, wherein the compound is MM'XH where M is an alkaline earth cation, M' is an alkali metal cation, X is a doubly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

50. (Previously Presented) A method according to claim 49, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

51. (Previously Presented) A method according to claim 17, wherein the compound has the formula MM'XX'H where M is an alkaline earth cation, M' is an alkali metal cation, X and X' are each a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

52. (Previously Presented) A method according to claim 51, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

53. (Previously Presented) A method according to claim 17, wherein the compound has the formula $H_nS$ wherein n is 1 or 2, and the hydrogen content of $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

54. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content of $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

55. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MXM'H_n$ wherein n is an integer from 1 to 5;

M is an alkali or alkaline earth cation;

X is a singly negatively charged anion or a doubly negatively charged anion;

M' is selected from the group consisting of Si, Al, Ni, the transition elements, the inner transition elements, and the rare earth elements; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

56. (Previously Presented) A method according to claim 55, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

57. (Previously Presented) A method according to claim 55, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

58. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MAlH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

59. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of the transition elements, the inner transition elements, and the rare earth element cations and nickel; and

the hydrogen content $H_n$ comprises at least one increased binding energy

hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

60. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MNiH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

61. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MM'H_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum;

M' is selected from the group consisting of the transition elements, the inner transition elements, and rare earth element cations; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

62. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

63. (Previously Presented) A method according to claim 17, wherein the compound has the formula $Si_2H_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

64. (Previously Presented) A method according to claim 17, wherein the compound has the formula $SiH_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

65. (Previously Presented) A method according to claim 17, wherein the compound has the formula $TiH_n$ wherein n is an integer from 1 to 4, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

66. (Previously Presented) A method according to claim 17, wherein the compound has the formula $Al_2H_n$ wherein n is an integer from 1 to 4 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

67. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MXAlX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

68. (Previously Presented) A method according to claim 67, wherein said singly negatively

charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

69. (Previously Presented) A method according to claim 67, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

70. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MXSiX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

71. (Previously Presented) A method according to claim 70, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

72. (Previously Presented) A method according to claim 70, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

73. (Previously Presented) A method according to claim 17, wherein the compound has the formula $SiO_2H_n$ wherein n is an integer from 1 to 6 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

74. (Previously Presented) A method according to claim 17, wherein the compound has

the formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

75. (Previously Presented) A method according to claim 17, wherein the compound has the formula $MSi_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

76. (Previously Presented) A method according to claim 17, wherein the compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species, and said method further comprises decomposing said compound to provide said hydrino hydride ion.

77. (Previously Presented) A method according to claim 17, wherein the compound is greater that 50 atomic percent pure.

78. (Previously Presented) A method according to claim 17, wherein the compound is greater that 90 atomic percent pure.

79. (Previously Presented) A method according to claim 17, wherein said at least one other element comprises at least one selected from the group consisting of a proton, ordinary hydrogen ion, ordinary hydrogen atom, ordinary hydrogen molecules, ordinary hydrogen molecular ions and ordinary $H_3^+$ ions and said method further comprises decomposing said compound to provide said hydrino hydride ion.

80. (Previously Presented) A method according to claim 17, wherein said at least one other element comprises at least one element selected from the group consisting of alkaline earth metals and alkali metals and said method further comprises decomposing said compound to provide said hydrino hydride ion.

81. (Previously Presented) A method according to claim 80, wherein said element comprises lithium or lithium ion.

82. (Previously Presented) A method according to claim 17, wherein said at least one other element comprises at least one element selected from the group consisting of organic compounds and said method further comprises decomposing said compound to provide said hydrino hydride ion.

83. (Previously Presented) A method according to claim 17, wherein said at least one other element comprises at least one element selected from the group consisting of semiconductors and said method further comprises decomposing said compound to provide said hydrino hydride ion.

84. (Previously Presented) A method according to claim 17, wherein said compound comprising:

(a) at least one neutral, positive or negative increased binding energy hydrogen species having a binding energy:

(i) greater than the binding energy of the corresponding ordinary hydrogen species, or

(ii) greater than the binding energy of any hydrogen species for which the corresponding ordinary hydrogen species is unstable or is not observed because the ordinary hydrogen species'

binding energy is less than thermal energies at ambient conditions, or is negative; and

(b) at least one other element, wherein said increased binding energy hydrogen species is selected from the group consisting of $H_n$, $H_n^-$, and $H_n^+$, where n is an integer of 1 to 8, and n is greater than 1 when H has a positive charge.

85. (Previously Presented) A method according to claim 84, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, $\hbar$ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a binding energy greater than about 16.4 eV.

86. (Previously Presented) A method according to claim 84, wherein the increased binding energy hydrogen species comprises hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

87. (Previously Presented) A method according to claim 84, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge.

88. (Previously Presented) A method according to claim 84, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/$(1/p)^2$, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, $H_3^+(1/p)$, having a binding energy of about $22.6/(1/p)^2$ eV; (d) a dihydrino molecule having a binding energy of about $15.5/(1/p)^2$ eV; and (e) a dihydrino molecular ion with a binding energy of about $16.4/(1/p)^2$ eV.

89. (Previously Presented) A method according to claim 88, wherein p is 2 to 200.

90. (Previously Presented) A method according to claim 88, wherein p is 2 to 24.

91. (Previously Presented) A method according to claim 88, wherein said increased binding energy hydrogen species is negative.

92. (Previously Presented) A method according to claim 3, wherein said at least one hydrino hydride ion comprises a mixture of 2 or more types of hydrino hydride ions.

93. (Previously Presented) A method according to claim 3, further comprising reacting hydrino atoms with electrons to produce said hydrino hydride ion.

94. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst having a net enthalpy of reaction of at least m27 eV, where m is an integer.

95. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst adapted to provide a resonant absorption with the energy released by said hydrogen atoms when said hydrogen atoms undergo a transition to a lower energy state.

96. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising a salt of rubidium.

97. (Previously Presented) A method according to claim 96, wherein said salt of rubidium is selected from the group consisting of RbOH, $Rb_2SO_4$, $Rb_2CO_3$, and $Rb_3PO_4$.

98. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising a salt of potassium.

99. (Previously Presented) A method according to claim 98, wherein said salt of potassium is selected from the group consisting of KOH, $K_2SO_4$, $K_2CO_3$ and $K_3PO_4$.

100. (Previously Presented) A method according to claim 98, wherein said salt of potassium is $K_2CO_3$.

101. (Previously Presented) A method according to claim 93, further comprising forming hydrino atoms from hydrogen atoms by use of a catalyst comprising a salt of titanium.

102. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising an ion selected from the group consisting of ($Rb^+$), ($Mo^{2+}$), and ($Ti^{2+}$).

103. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst selected from the group consisting of ($Al^{2+}$), ($Ar^+$), ($Ti^{2+}$), ($As^{2+}$), ($Rb^+$), ($Mo^{2+}$), ($Ru^{2+}$), ($In^{2+}$), and ($Te^{2+}$).

104. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst capable of providing a net enthalpy of reaction in the range of 26.8 to 28.5 eV.

105. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one pair of ions selected from the group consisting of: ($Sn^{4+}$, $Si^{4+}$), ($Pr^{3+}$, $Ca^{2+}$), ($Sr^{2+}$, $Cr^{2+}$), ($Cr^{3+}$, $Tb^{3+}$), ($Sb^{3+}$,$Co^{2+}$), ($Bi^{3+}$, $Ni^{2+}$), ($Pd^{2+}$, $In^{+}$), ($La^{3+}$, $Dy^{3+}$), ($La^{3+}$, $Ho^{3+}$), ($K^{+}$, $K^{+}$), ($V^{3+}$, $Pd^{2+}$), ($Lu^{3+}$, $Zn^{2+}$), ($As^{3+}$, $Ho^{3+}$), ($Mo^{5+}$, $Sn^{4+}$), ($Sb^{3+}$, $Cd^{2+}$), ($Ag^{2+}$,$Ag^{+}$), ($La^{3+}$, $Er^{3+}$), ($V^{4+}$, $B^{3+}$), ($Fe^{3+}$, $Ti^{3+}$), ($Co^{2+}$, $Ti^{+}$), ($Bi^{3+}$, $Zn^{2+}$), ($As^{3+}$, $Dy^{3+}$), ($Ho^{3+}$, $Mg^{2+}$), ($K^{+}$, $Rb^{+}$), ($Cr^{3+}$, $Pr^{3+}$), ($Sr^{2+}$, $Fe^{2+}$), ($Ni^{2+}$, $Cu^{+}$), ($Li^{+}$, $Pb^{2+}$), ($Sr^{2+}$, $Mo^{2+}$), ($Y^{3+}$, $Zr^{4+}$), ($Cd^{2+}$, $Ba^{2+}$), ($Ho^{3+}$, $Pb^{2+}$), ($Eu^{3+}$, $Mg^{2+}$), ($Er^{3+}$, $Mg^{2+}$), ($Bi^{4+}$, $Al^{3+}$), ($Ca^{2+}$, $Sm^{3+}$), ($V^{3+}$, $La^{3+}$), ($Gd^{3+}$, $Cr^{2+}$), ($Mn^{2+}$, $Ti^{+}$), ($Yb^{3+}$, $Fe^{2+}$), ($Ni^{2+}$, $Ag^{+}$), ($Zn^{2+}$, $Yb^{2+}$), ($Se^{4+}$, $Sn^{4+}$), ($Sb^{3+}$, $Bi^{2+}$), and ($Eu^{3+}$, $Pb^{2+}$).

106. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising oxygen in combination with at least one atom selected from the group consisting of Cu, As, Pd, Te, Cs and Pt.

107. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one pair selected from the group consisting of: (B, $Li^{+}$), (S, $Li^{+}$), (Br, $Li^{+}$), ($Pm^{+}$, $Li^{+}$), ($Sm^{+}$, $Li^{+}$), ($Tb^{+}$, $Li^{+}$), ($Dy^{+}$, $Li^{+}$), ($Sb^{+}$, $H^{+}$) and ($Bi^{+}$, $H^{+}$).

108. (Previously Presented) A method according to claim 93,further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one

pair selected from the group consisting of:

( He 0+ , Co 3+ );
( He 0+ , Ga 3+ );
( Li 0+ , Ni 3+ );
( Li 0+ , Xe 3+ );
( Li 0+ , Hg 3+ );
( Li 1+ , Na 4+ );
( Li 1+ , Y 6+ );
( Be 1+ , Bi 6+ );
( Be 2+ , Al 6+ );
( B 1+ , C 2+ );
( B 1+ , K 2+ );
( B 1+ , Ho 3+ );
( B 1+ , Er 3+ );
( B 1+ , Tm 3+ );
( B 1+ , Lu 3+ );
( C 1+ , N 2+ );
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( C 1+ , Sn 3+ );
( C 2+ , Mn 4+ );
( C 2+ , Co 4+ );
( N 0+ , Sr 2+ );
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( N 0+ , Ce 2+ );
( N 0+ , Pr 2+ );
( N 0+ , Nd 2+ );
( N 0+ , Pm 2+ );
( N 0+ , Sm 2+ );
( N 0+ , Eu 2+ );
( N 1+ , O 2+ );
( N 1+ , Si 3+ );
( N 1+ , P 3+ );
( N 1+ , Mn 3+ );
( N 1+ , Rh 3+ );
( N 2+ , F 3+ );
( N 3+ , Br 6+ );
( O 0+ , Ti 2+ );
( O 0+ , V 2+ );
( O 0+ , Nb 2+ );
( O 0+ , Hf 2+ );
( O 1+ , Ne 2+ );
( O 1+ , Ca 3+ );
( Cl 2+ , Ho 4+ );
( Cl 2+ , Er 4+ );
( Cl 3+ , Cl 4+ );
( Cl 5+ , Ni 6+ );
(O 1+ , Nd 4+ );
(O 1+ , Tb 4+ );
(O 2+ , Ne 3+ );
(O 3+ , Sb 6+ );
(O 4+ , Fe 7+ );
(F 0+ , Al 2+ );
(F 0+ , Si 2+ );
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(F 0+ , Ru 2+ );
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(F 0+ , Bi 2+ );
(F 1+ , Sb 4+ );
(F 3+ , Fe 6+ );
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(Ne 0+ , Dy 3+ );
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(Na 0+ , Bi 2+ );
(Na 2+ , Ti 5+ );
(Na 2+ , Kr 6+ );
(Na 3+ , Y 7+ );
(Mg 1+ , Rb 3+ );
(Mg 1+ , Eu 4+ );
(Mg 3+ , Ne 5+ );
(Mg 6+ , Cl 8+ );
(Al 1+ , Sc 2+ );
(Al 1+ , Zr 2+ );
(Al 1+ , Lu 2+ );
(Al 2+ , S 5+ );
(Sc 4+ , N 5+ );
(Ti 2+ , Ar 2+ );
(Ti 2+ , Mo 3+ );
(Ti 4+ , O 5+ );
(Al 2+ , Cl 5+ );
(Al 4+ , Mn 8+ );
(Si 1+ , Mg 2+ );
(Si 1+ , V 2+ );
(Si 1+ , Tc 2+ );
(Si 1+ , Sn 2+ );
(Si 1+ , Hf 2+ );
(Si 1+ , Pb 2+ );
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(Si 2+ , Ga 3+ );
(Si 2+ , Ge 3+ );
(Si 2+ , Tl 3+ );
(Si 3+ , Ni 6+ );
(Si 3+ , Rb 7+ );
(Si 4+ , Al 6+ );
(P 1+ , Mg 2+ );
(P 1+ , Tc 2+ );
(P 1+ , Sn 2+ );
(P 1+ , Hf 2+ );
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(P 2+ , Ni 3+ );
(P 2+ , Cd 3+ );
(P 2+ , Xe 3+ );
(P 3+ , Nb 5+ );
(P 5+ , C 5+ );
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(S 1+ , La 3+ );
(S 1+ , Ce 3+ );
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(S 2+ , Sr 3+ );
(S 2+ , Cd 3+ );
(S 3+ , Cu 4+ );
(S 3+ , Rb 4+ );
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(Cl 1+ , C 2+ );
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(Cl 1+ , Zr 3+ );
(Cl 1+ , Eu 3+ );
(Cl 1+ , Tm 3+ );
(Cl 2+ , Te 4+ );
(Cl 2+ , Sm 4+ );
(Cl 2+ , Gd 4+ );
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(Fe 1+ , Sc 2+ );
(Fe 1+ , Y 2+ );
(Fe 1+ , Yb 2+ );

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( Cl 5+ , Rb 7+ );
( Ar 0+ , Ba 2+ );
( Ar 0+ , Ce 2+ );
( Ar 0+ , Pr 2+ );
( Ar 0+ , Nd 2+ );
( Ar 0+ , Ra 2+ );
( Ar 1+ , Ti 3+ );
( Ar 2+ , C 3+ );
( Ar 3+ , K 4+ );
( Ar 3+ , Br 5+ );
( Ar 3+ , Mo 5+ );
( Ar 4+ , Y 5+ );
( K 1+ , Si 3+ );
( K 1+ , P 3+ );
( K 1+ , Mn 3+ );
( K 1+ , Ge 3+ );
( K 1+ , Rh 3+ );
( K 1+ , Tl 3+ );
( K 2+ , He 2+ );
( K 2+ , Si 4+ );
( K 2+ , As 4+ );
( K 3+ , P 5+ );
( K 3+ , Zr 5+ );
( K 4+ , Rb 6+ );
( K 5+ , Mg 4+ );
( K 5+ , Kr 7+ );
( K 6+ , Y 8+ );
( Ca 1+ , C 2+ );
( Ca 1+ , Sm 3+ );
( Ca 1+ , Dy 3+ );
( Ca 1+ , Ho 3+ );
( Ca 1+ , Er 3+ );
( Ca 1+ , Tm 3+ );
( Ca 1+ , Lu 3+ );
( Ca 2+ , O 3+ );
( Ca 2+ , Ni 4+ );
( Ca 3+ , Mn 5+ );
( Ca 3+ , Rb 5+ );
( Ca 4+ , Cl 6+ );
( Ca 4+ , Ar 6+ );
( Ca 4+ , Sc 5+ );
( Ca 5+ , Y 7+ );
( Sc 2+ , Ti 4+ );
( Sc 2+ , Bi 4+ );
( Cu 4+ , Rb 6+ );
( Cu 5+ , Mn 7+ );
( Zn 1+ , P 2+ );
( Zn 1+ , I 2+ );
(Ti 4+ , Zn 6+ );
(Ti 4+ , As 6+ );
(V 1+ , Sr 2+ );
(V 1+ , La 2+ );
(V 1+ , Ce 2+ );
(V 1+ , Pr 2+ );
(V 1+ , Nd 2+ );
(V 1+ , Pm 2+ );
(V 1+ , Sm 2+ );
(V 1+ , Eu 2+ );
(V 2+ , O 2+ );
(V 3+ , Mn 4+ );
(V 3+ , Co 4+ );
(V 4+ , Ar 6+ );
(V 4+ , Sc 5+ );
(V 5+ , Mg 5+ );
(V 6+ , Sc 8+ );
(V 6+ , Br 8+ );
(Cr 1+ , Sc 2+ );
(Cr 1+ , Ti 2+ );
(Cr 1+ , Zr 2+ );
(Cr 1+ , Lu 2+ );
(Cr 2+ , F 2+ );
(Cr 2+ , Na 2+ );
(Cr 2+ , Se 3+ );
(Cr 2+ , Pd 3+ );
(Cr 2+ , I 3+ );
(Cr 2+ , Hg 3+ );
(Cr 3+ , O 3+ );
(Cr 3+ , Ni 4+ );
(Cr 4+ , O 4+ );
(Cr 5+ , Ne 5+ );
(Cr 5+ , Fe 7+ );
(Mn 1+ , V 2+ );
(Mn 1+ , Nb 2+ );
(Mn 1+ , Sn 2+ );
(Mn 1+ , Hf 2+ );
(Mn 2+ , Cu 3+ );
(Mn 2+ , Zn 3+ );
(Mn 2+ , Br 3+ );
(Mn 2+ , Zr 4+ );
(Mn 2+ , Ce 4+ );
(Mn 2+ , Hf 4+ );
(Mn 3+ , Mg 3+ );
(Mn 3+ , Te 5+ );
(Se 1+ , Fe 2+ );
(Se 1+ , Co 2+ );
(Se 1+ , Ge 2+ );
(Se 1+ , Ru 2+ );
(Fe 1+ , Lu 2+ );
(Fe 2+ , S 3+ );
(Fe 2+ , Cu 3+ );
(Fe 2+ , Zn 3+ );
(Fe 2+ , Br 3+ );
(Fe 2+ , Zr 4+ );
(Fe 2+ , Ce 4+ );
(Fe 5+ , Sr 7+ );
(Co 1+ , Mg 2+ );
(Co 1+ , Cr 2+ );
(Co 1+ , Mn 2+ );
(Co 1+ , Mo 2+ );
(Co 1+ , Tc 2+ );
(Co 1+ , Pb 2+ );
(Co 2+ , Cu 3+ );
(Co 2+ , Zn 3+ );
(Co 2+ , Br 3+ );
(Co 2+ , Zr 4+ );
(Co 2+ , Ag 3+ );
(Co 2+ , Ce 4+ );
(Co 2+ , Hf 4+ );
(Co 4+ , Nb 6+ );
(Co 5+ , Sc 6+ );
(Ni 1+ , Co 2+ );
(Ni 1+ , Ni 2+ );
(Ni 1+ , Rh 2+ );
(Ni 1+ , Cd 2+ );
(Ni 1+ , Sb 2+ );
(Ni 2+ , Ne 2+ );
(Ni 2+ , Ca 3+ );
(Ni 2+ , Nd 4+ );
(Ni 2+ , Tb 4+ );
(Ni 4+ , Rb 6+ );
(Ni 6+ , Ar 8+ );
(Cu 1+ , Ag 2+ );
(Cu 1+ , I 2+ );
(Cu 1+ , Cs 2+ );
(Cu 1+ , Au 2+ );
(Cu 1+ , Hg 2+ );
(Cu 2+ , Sm 4+ );
(Cu 2+ , Gd 4+ );
(Cu 2+ , Dy 4+ );
(Cu 3+ , K 4+ );
(Cu 3+ , Br 5+ );
(Cu 3+ , Mo 5+ );
(Sr 1+ , Ga 2+ );
(Sr 1+ , Te 2+ );
(Sr 1+ , Pt 2+ );
(Sr 1+ , Tl 2+ );

( Zn 1+ , La 3+ );
( Zn 1+ , Au 2+ );
( Zn 1+ , Hg 2+ );
( Zn 2+ , Ti 4+ );
( Zn 2+ , Sn 4+ );
( Zn 2+ , Bi 4+ );
( Zn 3+ , As 5+ );
( Zn 4+ , Sr 6+ );
( Zn 5+ , Mn 7+ );
( Zn 6+ , Mo 8+ );
( Ga 1+ , Cr 2+ );
( Ga 1+ , Mn 2+ );
( Ga 1+ , Fe 2+ );
( Ga 1+ , Ge 2+ );
( Ga 1+ , Mo 2+ );
( Ga 1+ , Ru 2+ );
( Ga 1+ , Bi 2+ );
( Ga 2+ , Rb 3+ );
( Ga 2+ , Eu 4+ );
( Ga 2+ , Tm 4+ );
( Ge 1+ , Mg 2+ );
( Ge 1+ , Mn 2+ );
( Ge 1+ , Tc 2+ );
( Ge 1+ , Sn 2+ );
( Ge 1+ , Pb 2+ );
( Ge 2+ , F 2+ );
( Ge 2+ , Na 2+ );
( Ge 2+ , Se 3+ );
( Ge 2+ , Pd 3+ );
( Ge 2+ , I 3+ );
( Ge 3+ , V 5+ );
( Ge 3+ , Se 5+ );
( Ge 3+ , Pb 5+ );
( As 1+ , Sc 2+ );
( As 1+ , Y 2+ );
( As 1+ , Zr 2+ );
( As 1+ , Lu 2+ );
( As 2+ , Co 3+ );
( As 2+ , Ga 3+ );
( As 2+ , Ge 3+ );
( As 2+ , Tl 3+ );
( As 3+ , Fe 4+ );
( As 4+ , Sb 6+ );
( Se 1+ , Al 2+ );
( Se 1+ , Si 2+ );
( Tc 1+ , Sr 2+ );
( Tc 1+ , La 2+ );
( Tc 1+ , Ce 2+ );
( Tc 1+ , Pm 2+ );

(Se 1+ , In 2+ );
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(Se 2+ , Te 3+ );
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(Se 5+ , Y 7+ );
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(Br 1+ , I 2+ );
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(Br 4+ , S 5+ );
(Br 4+ , Cl 5+ );
(Br 5+ , Sb 6+ );
(Br 6+ , Ar 8+ );
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(Kr 1+ , S 2+ );
(Kr 1+ , Br 2+ );
(Kr 1+ , Xe 2+ );
(Kr 1+ , Nd 3+ );
(Kr 1+ , Pm 3+ );
(Kr 1+ , Tb 3+ );
(Kr 2+ , Kr 3+ );
(Kr 2+ , Tb 4+ );
(Kr 3+ , O 3+ );
(Kr 3+ , Ni 4+ );
(Kr 3+ , Kr 4+ );
(Kr 3+ , Nb 5+ );
(Kr 4+ , Zr 5+ );
(Kr 5+ , Sr 6+ );
(Kr 6+ , Y 7+ );
(Rb 1+ , Nb 3+ );
(Rb 2+ , Te 4+ );
(Rb 2+ , Sm 4+ );
(Rb 2+ , Gd 4+ );
(Rb 2+ , Dy 4+ );
(Rb 2+ , Ho 4+ );
(Rb 2+ , Er 4+ );
(Rb 3+ , Mg 3+ );
(Rb 3+ , Te 5+ );
(Rb 5+ , Rb 6+ );
(Rb 6+ , Te 7+ );
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(Sr 1+ , Zn 2+ );
(Sn 1+ , Er 2+ );
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(Sn 2+ , Ar 2+ );
(Sn 2+ , V 3+ );

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(Sr 3+ , Ar 4+ );
(Sr 3+ , Sr 4+ );
(Sr 3+ , Sb 5+ );
(Sr 3+ , Bi 5+ );
(Sr 4+ , Ar 5+ );
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(Y 2+ , Sr 3+ );
(Y 2+ , Cd 3+ );
(Y 3+ , Se 5+ );
(Y 3+ , Pb 5+ );
(Y 4+ , Ti 5+ );
(Y 4+ , Zn 5+ );
(Y 5+ , Co 6+ );
(Y 6+ , K 7+ );
(Zr 2+ , P 2+ );
(Zr 2+ , Ag 2+ );
(Zr 2+ , I 2+ );
(Zr 2+ , Cs 2+ );
(Zr 2+ , La 3+ );
(Zr 2+ , Au 2+ );
(Zr 2+ , Hg 2+ );
(Nb 2+ , C 2+ );
(Nb 2+ , K 2+ );
(Nb 2+ , Zr 3+ );
(Nb 2+ , Eu 3+ );
(Nb 2+ , Tm 3+ );
(Nb 2+ , Lu 3+ );
(Nb 3+ , Kr 3+ );
(Nb 3+ , Pr 4+ );
(Nb 3+ , Tb 4+ );
(Nb 4+ , N 4+ );
(Mo 1+ , Ba 2+ );
(Mo 1+ , Pr 2+ );
(Mo 1+ , Nd 2+ );
(Mo 1+ , Ra 2+ );
(Mo 2+ , Ru 3+ );
(Mo 2+ , Sn 3+ );
(Mo 3+ , Cr 4+ );
(Mo 3+ , Ge 4+ );
(Mo 4+ , Bi 5+ );
(Mo 5+ , Mn 6+ );
(Mo 6+ , O 6+ );
(Mo 6+ , Cr 7+ );
(Pr 2+ , Xe 2+ );
(Pr 2+ , Pr 3+ );
(Pr 2+ , Nd 3+ );
(Pr 2+ , Pm 3+ );

( Tc 1+ , Sm 2+ );
( Tc 1+ , Eu 2+ );
( Tc 1+ , Tb 2+ );
( Tc 1+ , Dy 2+ );
( Ru 1+ , Ca 2+ );
( Ru 1+ , Eu 2+ );
( Ru 1+ , Tb 2+ );
( Ru 1+ , Dy 2+ );
( Ru 1+ , Ho 2+ );
( Ru 1+ , Er 2+ );
( Rh 1+ , V 2+ );
( Rh 1+ , Nb 2+ );
( Rh 1+ , Sn 2+ );
( Rh 1+ , Hf 2+ );
( Pd 1+ , Al 2+ );
( Pd 1+ , Si 2+ );
( Pd 1+ , Fe 2+ );
( Pd 1+ , Co 2+ );
( Pd 1+ , Ru 2+ );
( Pd 1+ , In 2+ );
( Pd 1+ , Sb 2+ );
( Pd 1+ , Bi 2+ );
( Ag 1+ , Cu 2+ );
( Ag 1+ , As 2+ );
( Ag 1+ , Ag 2+ );
( Ag 1+ , Cs 2+ );
( Ag 1+ , Hg 2+ );
( Cd 1+ , Zn 2+ );
( Cd 1+ , Ga 2+ );
( Cd 1+ , Cd 2+ );
( Cd 1+ , Tl 2+ );
( In 1+ , Sc 2+ );
( In 1+ , Y 2+ );
( In 1+ , Yb 2+ );
( In 1+ , Lu 2+ );
( In 2+ , Sr 3+ );
( In 2+ , Cd 3+ );
( Sn 1+ , Ca 2+ );
( Sn 1+ , Sr 2+ );
( Sn 1+ , La 2+ );
( Sn 1+ , Sm 2+ );
( Sn 1+ , Eu 2+ );
( Sn 1+ , Tb 2+ );
( Sn 1+ , Dy 2+ );
( Sn 1+ , Ho 2+ );
( Lu 2+ , Hf 3+ );
( Hf 2+ , As 2+ );
( Hf 2+ , Ag 2+ );
( Hf 2+ , I 2+ );
(Sn 2+ , Mo 3+ );
(Sn 3+ , Mn 4+ );
(Sn 3+ , Fe 4+ );
(Sn 3+ , Co 4+ );
(Sb 2+ , Ti 3+ );
(Sb 2+ , Sb 3+ );
(Sb 2+ , Bi 3+ );
(Sb 3+ , C 3+ );
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(Te 1+ , Y 2+ );
(Te 1+ , Gd 2+ );
(Te 1+ , Tm 2+ );
(Te 1+ , Yb 2+ );
(Te 1+ , Lu 2+ );
(Te 2+ , Sc 3+ );
(Te 2+ , Kr 2+ );
(Te 2+ , Yb 3+ );
(Te 2+ , Hf 3+ );
(Te 3+ , Ar 3+ );
(Te 3+ , La 4+ );
(Te 3+ , Yb 4+ );
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(I 1+ , Si 2+ );
(I 1+ , Fe 2+ );
(I 1+ , Co 2+ );
(I 1+ , Ge 2+ );
(I 1+ , Ru 2+ );
(I 1+ , In 2+ );
(I 1+ , Bi 2+ );
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(Xe 1+ , Co 2+ );
(Xe 1+ , Ni 2+ );
(Xe 1+ , Rh 2+ );
(Xe 1+ , Cd 2+ );
(Xe 1+ , Sb 2+ );
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(La 2+ , Sb 3+ );
(Ce 2+ , Ag 2+ );
(Ce 2+ , I 2+ );
(Ce 2+ , Cs 2+ );
(Ce 2+ , Au 2+ );
(Ce 2+ , Hg 2+ );
(Pr 2+ , B 2+ );
(Pr 2+ , Y 3+ );
(Pb 2+ , As 3+ );
(Pb 2+ , In 3+ );
(Pb 2+ , Te 3+ );
(Pb 2+ , Pb 3+ );
(Pr 2+ , Gd 3+ );
(Pr 2+ , Tb 3+ );
(Nd 2+ , Sm 3+ );
(Nd 2+ , Dy 3+ );
(Nd 2+ , Ho 3+ );
(Nd 2+ , Er 3+ );
(Nd 2+ , Lu 3+ );
(Pm 2+ , C 2+ );
(Pm 2+ , K 2+ );
(Pm 2+ , Zr 3+ );
(Pm 2+ , Eu 3+ );
(Pm 2+ , Tm 3+ );
(Sm 2+ , Cl 2+ );
(Sm 2+ , Sc 3+ );
(Sm 2+ , Yb 3+ );
(Eu 2+ , Nb 3+ );
(Gd 2+ , Cl 2+ );
(Gd 2+ , Sc 3+ );
(Gd 2+ , Eu 3+ );
(Gd 2+ , Yb 3+ );
(Tb 2+ , B 2+ );
(Tb 2+ , S 2+ );
(Tb 2+ , Br 2+ );
(Tb 2+ , Xe 2+ );
(Tb 2+ , Sm 3+ );
(Tb 2+ , Tb 3+ );
(Tb 2+ , Dy 3+ );
(Tb 2+ , Ho 3+ );
(Tb 2+ , Er 3+ );
(Dy 2+ , Cl 2+ );
(Dy 2+ , K 2+ );
(Dy 2+ , Zr 3+ );
(Dy 2+ , Eu 3+ );
(Dy 2+ , Yb 3+ );
(Ho 2+ , Sc 3+ );
(Ho 2+ , Yb 3+ );
(Ho 2+ , Hf 3+ );
(Er 2+ , Sc 3+ );
(Er 2+ , Yb 3+ );
(Er 2+ , Hf 3+ );
(Tm 2+ , Kr 2+ );
(Tm 2+ , Nb 3+ );
(Tm 2+ , Hf 3+ );
(Yb 2+ , Ti 3+ );
(Lu 2+ , Kr 2+ );
(Tl 1+ , Mg 2+ );
(Tl 1+ , Mn 2+ );
(Tl 1+ , Mo 2+ );
(Tl 1+ , Tc 2+ );

( Hf 2+ , Cs 2+ );
( Hf 2+ , Hg 2+ );
( Hg 1+ , Al 2+ );
( Hg 1+ , Si 2+ );
( Hg 1+ , Co 2+ );
( Hg 1+ , Ni 2+ );
( Hg 1+ , Rh 2+ );
( Hg 1+ , Cd 2+ );
( Hg 1+ , In 2+ );
( Hg 1+ , Sb 2+ );
(Pb 3+ , Br 4+ );
(Bi 1+ , Ba 2+ );
(Bi 2+ , Ar 2+ );
(Bi 2+ , Mo 3+ );
(Bi 3+ , Se 4+ );
(Bi 3+ , Mo 4+ );
(Bi 3+ , Pb 4+ );
(Bi 4+ , P 5+ );
(Bi 4+ , Kr 5+ );
(Bi 4+ , Zr 5+ );
(Tl 1+ , Sn 2+ );
(Tl 1+ , Pb 2+ );
(Pb 1+ , Sc 2+ );
(Pb 1+ , Y 2+ );
(Pb 1+ , Lu 2+ ); and
(Pb 2+ , Fe 3+ ).

109. (Previously Presented) A method according to claim 93, further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one free atom selected from the group consisting of Be, Cu, Zn, Pd, Te and Pt.

110. (Previously Presented) A method according to claim 93, further comprising forming hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one set of two species selected from the group consisting of:

( Li 0+ , Ar 5+ );
( Li 0+ , Mo 6+ );
( Be 0+ , Kr 5+ );
( B 0+ , Sc 3+ );
( B 0+ , Zr 3+ );
( B 0+ , Yb 3+ );
( C 0+ , Te 3+ );
( C 0+ , Tl 3+ );
( N 0+ , Ag 3+ );
( N 0+ , Cd 3+ );
( N 0+ , Hg 3+ );
( N 1+ , Bi 5+ );
( N 2+ , Br 6+ );
( N 2+ , Kr 6+ );
( O 0+ , Cl 3+ );
( O 0+ , Kr 3+ );
( O 0+ , Sm 4+ );
( O 0+ , Dy 4+ );
( O 2+ , Na 4+ );
( O 2+ , Cl 6+ );
( O 2+ , Mn 6+ );
( O 3+ , Al 5+ );
( F 0+ , Bi 4+ );
( F 1+ , Mn 5+ );
( P 1+ , Nd 4+ );
( P 1+ , Tb 4+ );
( P 3+ , Na 5+ );
( S 0+ , Sm 3+ );
( S 0+ , Dy 3+ );
( S 0+ , Ho 3+ );
( S 0+ , Er 3+ );
( S 0+ , Lu 3+ );
( S 1+ , Nb 4+ );
( S 1+ , Ho 4+ );
( S 1+ , Er 4+ );
( S 1+ , Tm 4+ );
( S 2+ , Bi 5+ );
( Cl 0+ , Ti 3+ );
( Cl 1+ , Mo 4+ );
( Cl 1+ , Pb 4+ );
( Cl 3+ , Sc 5+ );
( Cl 4+ , Br 7+ );
( Ar 0+ , Mn 3+ );
( Ar 0+ , As 3+ );
( Ar 0+ , Rh 3+ );
( Ar 0+ , Tl 3+ );
( Ar 1+ , Mn 4+ );
( Ar 1+ , In 4+ );
( Ti 2+ , As 5+ );
( Ti 2+ , Se 5+ );
( V 1+ , Cd 3+ );
( V 1+ , I 3+ );
( V 1+ , Hg 3+ );
( V 2+ , Kr 4+ );
( V 2+ , Nb 5+ );
( V 4+ , Ni 7+ );
( V 4+ , Kr 8+ );
( Cr 1+ , S 3+ );
( Cr 1+ , Ca 3+ );
( Cr 3+ , Be 3+ );
( Cr 3+ , Zn 5+ );
( Cr 5+ , Cu 8+ );
( Mn 1+ , Nd 4+ );
( Mn 1+ , Tb 4+ );
( Mn 2+ , Ca 4+ );
( Mn 3+ , Nb 6+ );
( Mn 5+ , Ca 8+ );
( Fe 1+ , Nd 4+ );
( Fe 1+ , Pm 4+ );
( Fe 1+ , Tb 4+ );
( Fe 3+ , Ne 4+ );
( Fe 5+ , Mo 8+ );

( F 3+ , Mg 5+ ); ( Ar 5+ , Mg 5+ ); ( Co 1+ , Pm 4+ );
( F 4+ , Ti 8+ ); ( K 0+ , Al 3+ ); ( Co 2+ , C 4+ );
( Ne 1+ , Ge 5+ ); ( K 0+ , Cr 3+ ); ( Co 3+ , Mg 4+ );
( Ne 4+ , Al 6+ ); ( K 0+ , Pb 3+ ); ( Ni 1+ , La 4+ );
( Na 0+ , Cr 4+ ); ( K 1+ , Sc 4+ ); ( Ni 1+ , Yb 4+ );
( Na 0+ , Ge 4+ ); ( K 2+ , Cl 5+ ); ( Ni 1+ , Lu 4+ );
( Na 1+ , Sc 5+ ); ( Ca 0+ , Eu 3+ ); ( Ni 2+ , K 4+ );
( Na 1+ , Bi 6+ ); ( Ca 0+ , Dy 3+ ); ( Ni 5+ , Fe 8+ );
( Na 3+ , Ne 6+ ); ( Ca 0+ , Ho 3+ ); ( Cu 0+ , Ce 3+ );
( Na 4+ , Ne 7+ ); ( Ca 0+ , Er 3+ ); ( Cu 0+ , Pr 3+ );
( Mg 0+ , Kr 3+ ); ( Ca 1+ , Mg 3+ ); ( Cu 1+ , Ar 3+ );
( Mg 2+ , Al 5+ ); ( Ca 1+ , Fe 4+ ); ( Cu 1+ , Ti 4+ );
( Mg 3+ , Na 6+ ); ( Ca 1+ , Co 4+ ); ( Cu 1+ , Te 4+ );
( Al 1+ , Zr 5+ ); ( Ca 3+ , Co 6+ ); ( Cu 2+ , Sn 5+ );
( Al 3+ , Mg 6+ ); ( Ca 3+ , Y 6+ ); ( Zn 0+ , Y 3+ );
( Al 3+ , Cr 8+ ); ( Sc 1+ , C 3+ ); ( Zn 0+ , Pm 3+ );
( Si 1+ , Zn 3+ ); ( Sc 1+ , Te 4+ ); ( Zn 0+ , Gd 3+ );
( Si 1+ , Ce 4+ ); ( Ti 1+ , Mn 3+ ); ( Zn 0+ , Tb 3+ );
( Si 2+ , Na 4+ ); ( Ti 1+ , Ga 3+ ); ( Zn 1+ , Mo 4+ );
( Si 2+ , Cl 6+ ); ( Ti 1+ , As 3+ ); ( Zn 1+ , Pb 4+ );
( Si 3+ , Be 4+ ); ( Ti 1+ , Rh 3+ ); ( Zn 2+ , N 4+ );
( Si 5+ , N 6+ ); ( Ti 1+ , Tl 3+ ); ( Zn 2+ , Kr 5+ );
( Zn 3+ , N 5+ ); ( Y 5+ , Co 7+ ); ( Ce 1+ , Ho 3+ );
( Zn 5+ , Co 8+ ); ( Zr 1+ , Zr 3+ ); ( Ce 1+ , Er 3+ );
( Ga 1+ , Bi 4+ ); ( Zr 2+ , Sc 4+ ); ( Ce 1+ , Lu 3+ );
( Ge 1+ , S 3+ ); ( Zr 2+ , Sr 4+ ); ( Pr 1+ , Sc 3+ );
( Ge 1+ , Ce 4+ ); ( Nb 1+ , Mo 3+ ); ( Pr 1+ , Zr 3+ );
( As 1+ , Ca 3+ ); ( Nb 1+ , Sb 3+ ); ( Pr 1+ , Yb 3+ );
( As 1+ , Br 3+ ); ( Nb 1+ , Bi 3+ ); ( Nd 1+ , Nb 3+ );
( As 2+ , F 3+ ); ( Nb 2+ , Sn 4+ ); ( Nd 1+ , Hf 3+ );
( As 2+ , Kr 4+ ); ( Nb 2+ , Sb 4+ ); ( Pm 1+ , Nb 3+ );
( As 2+ , Nb 5+ ); ( Nb 3+ , Co 5+ ); ( Sm 1+ , Ti 3+ );
( Se 1+ , Zn 3+ ); ( Nb 3+ , Rb 5+ ); ( Eu 1+ , V 3+ );
( Se 1+ , Ce 4+ ); ( Nb 4+ , Zn 6+ ); ( Eu 1+ , Mo 3+ );
( Se 2+ , Kr 4+ ); ( Mo 1+ , Se 3+ ); ( Eu 1+ , Sb 3+ );
( Se 2+ , Nb 5+ ); ( Mo 1+ , I 3+ ); ( Gd 1+ , Bi 3+ );
( Se 3+ , Ni 5+ ); ( Mo 4+ , Fe 6+ ); ( Tb 1+ , Hf 3+ );
( Se 4+ , Nb 7+ ); ( Mo 5+ , Rb 8+ ); ( Dy 1+ , Ti 3+ );
( Br 0+ , Eu 3+ ); ( Ag 0+ , La 3+ ); ( Ho 1+ , Bi 3+ );
( Br 0+ , Tm 3+ ); ( Ag 0+ , Ce 3+ ); ( Er 1+ , Bi 3+ );
( Br 1+ , Nb 4+ ); ( Cd 0+ , La 3+ ); ( Tm 1+ , V 3+ );
( Br 1+ , Gd 4+ ); ( In 1+ , Nd 4+ ); ( Tm 1+ , Mo 3+ );
( Br 1+ , Ho 4+ ); ( In 1+ , Tb 4+ ); ( Tm 1+ , Sb 3+ );
( Br 1+ , Er 4+ ); ( Sn 1+ , Si 3+ ); ( Yb 1+ , Al 3+ );
( Br 2+ , F 3+ ); ( Sn 1+ , Co 3+ ); ( Yb 1+ , Ru 3+ );
( Br 2+ , Ga 4+ ); ( Sn 1+ , Ge 3+ ); ( Yb 1+ , In 3+ );
( Br 3+ , O 4+ ); ( Sn 2+ , F 3+ ); ( Yb 1+ , Sn 3+ );
( Br 3+ , Al 4+ ); ( Sn 2+ , Ga 4+ ); ( Lu 1+ , Tc 3+ );
( Br 4+ , N 5+ ); ( Sb 1+ , Si 3+ ); ( Lu 1+ , Ru 3+ );

( Kr 0+ , Ti 3+ ); ( Sb 1+ , Co 3+ ); ( Lu 1+ , In 3+ );
( Kr 1+ , Sn 4+ ); ( Sb 1+ , Ge 3+ ); ( Lu 1+ , Sn 3+ );
( Kr 1+ , Sb 4+ ); ( Sb 2+ , As 4+ ); ( Hf 1+ , Sc 3+ );
( Kr 2+ , Ne 3+ ); ( Te 1+ , Mn 3+ ); ( Hf 1+ , Yb 3+ );
( Kr 2+ , Bi 5+ ); ( Te 1+ , As 3+ ); ( Hg 0+ , La 3+ );
( Kr 3+ , O 4+ ); ( Te 1+ , Rh 3+ ); ( Pb 1+ , Ni 3+ );
( Kr 3+ , Al 4+ ); ( Te 1+ , Te 3+ ); ( Pb 1+ , Se 3+ );
( Kr 4+ , Ar 6+ ); ( Te 1+ , Tl 3+ ); ( Pb 2+ , F 3+ );
( Rb 0+ , Sc 3+ ); ( Te 2+ , Cr 4+ ); ( Pb 2+ , Ga 4+ );
( Rb 0+ , Zr 3+ ); ( Te 2+ , Ge 4+ ); ( Bi 1+ , P 3+ );
( Rb 0+ , Yb 3+ ); ( Te 2+ , As 4+ ); ( Bi 1+ , Sr 3+ );
( Rb 1+ , N 3+ ); ( Te 3+ , Zr 5+ ); ( La 1+ , Ru 3+ );
( Sr 1+ , C 3+ ); ( Te 4+ , Ni 6+ ); ( La 1+ , In 3+ );
( Sr 1+ , Ar 3+ ); ( Te 4+ , Cu 6+ ); ( La 1+ , Sn 3+ );
( Sr 1+ , Ti 4+ ); ( Xe 0+ , Pr 3+ ); ( Ce 1+ , Sm 3+ ); and
( Sr 1+ , Te 4+ ); ( Xe 0+ , Nd 3+ ); ( Ce 1+ , Dy 3+ ).
( Sr 3+ , Nb 6+ ); ( La 1+ , Tc 3+ );

111. (Previously Presented) A method according to claim 93,further comprising forming said hydrino atoms from hydrogen atoms by use of a catalyst comprising at least one pair selected from the group consisting of:

( Ne 1 + , H 1 + ), ( Kr 3 + , B 2 + ), ( Tm 3 + , N 1 + ),
( Ar 2 + , H 1 + ), ( Rb 3 + , B 2 + ), ( Pb 3 + , N 1 + ),
( Sn 3 + , H 1 + ), ( B 2 + , P 1 + ), ( Sr 3 + , N 2 + ),
( Pm 3 + , H 1 + ), ( P 4 + , B 3 + ), ( N 2 + , P 2 + ),
( Sm 3 + , H 1 + ), ( B 2 + , S 1 + ), ( Ar 4 + , N 3 + ),
( Dy 3 + , H 1 + ), ( V 4 + , B 3 + ), ( Fe 4 + , N 3 + ),
( Kr 3 + , He 1 + ), ( B 2 + , As 1 + ), ( Ni 4 + , N 3 + ),
( Rb 3 + , He 1 + ), ( B 2 + , Se 1 + ), ( N 2 + , Cu 2 + ),
( K 4 + , He 2 + ), ( B 2 + , I 1 + ), ( N 2 + , Pd 2 + ),
( Zn 4 + , He 2 + ), ( B 2 + , Ba 2 + ), ( N 2 + , I 2 + ),
( Se 5 + , He 2 + ), ( B 2 + , Ce 2 + ), ( N 2 + , La 3 + ),
( He 1 + , Rb 2 + ), ( B 2 + , Pr 2 + ), ( N 2 + , Ce 3 + ),
( Zr 4 + , He 2 + ), ( B 2 + , Nd 2 + ), ( N 2 + , Tl 2 + ),
( He 1 + , Mo 3 + ), ( B 2 + , Pm 2 + ), ( N 3 + , Cr 4 + ),
( Si 2 + , Li 1 + ), ( B 2 + , Hg 1 + ), ( N 3 + , As 4 + ),
( Mn 2 + , Li 1 + ), ( B 2 + , Rn 1 + ), ( N 3 + , La 4 + ),
( Co 2 + , Li 1 + ), ( B 2 + , Ra 2 + ), ( Ne 4 + , N 5 + ),
( Pd 2 + , Li 1 + ), ( Cl 2 + , C 1 + ), ( Fe 6 + , N 5 + ),
( I 2 + , Li 1 + ), ( Zn 2 + , C 1 + ), ( Kr 7 + , N 5 + ),
( Hf 3 + , Li 1 + ), ( Nb 3 + , C 1 + ), ( Nb 6 + , N 5 + ),
( Li 1 + , C 3 + ), ( Pr 3 + , C 1 + ), ( N 4 + , Te 6 + ),
( Li 1 + , N 3 + ), ( Kr 3 + , C 2 + ), ( Ne 1 + , O 1 + ),

| | | |
|---|---|---|
| ( Li 1 + , Na 2 + ), | ( Rb 3 + , C 2 + ), | ( Ar 2 + , O 1 + ), |
| ( Li 1 + , S 4 + ), | ( C 2 + , P 2 + ), | ( Sn 3 + , O 1 + ), |
| ( Cu 5 + , Li 2 + ), | ( Ar 4 + , C 3 + ), | ( Pm 3 + , O 1 + ), |
| ( Li 1 + , Br 4 + ), | ( Fe 4 + , C 3 + ), | ( Sm 3 + , O 1 + ), |
| ( Br 6 + , Li 2 + ), | ( Ni 4 + , C 3 + ), | ( Dy 3 + , O 1 + ), |
| ( V 6 + , Li 3 + ), | ( C 2 + , Cu 2 + ), | ( F 2 + , O 2 + ), |
| ( Li 2 + , Mn 6 + ), | ( C 2 + , Ga 2 + ), | ( Ne 2 + , O 2 + ), |
| ( Cu 2 + , Be 1 + ), | ( C 2 + , Y 3 + ), | ( O 1 + , Mg 1 + ), |
| ( Kr 2 + , Be 1 + ), | ( C 2 + , Pd 2 + ), | ( O 1 + , Ti 1 + ), |
| ( Cd 2 + , Be 1 + ), | ( C 2 + , Ce 3 + ), | ( O 1 + , V 1 + ), |
| ( Te 3 + , Be 1 + ), | ( C 2 + , Gd 3 + ), | ( O 1 + , Cr 1 + ), |
| ( Ce 3 + , Be 1 + ), | ( C 2 + , Au 2 + ), | ( O 1 + , Mn 1 + ), |
| ( K 2 + , Be 2 + ), | ( C 2 + , Tl 2 + ), | ( O 1 + , Fe 1 + ), |
| ( V 3 + , Be 2 + ), | ( Sc 4 + , C 4 + ), | ( O 1 + , Co 1 + ), |
| ( Ge 3 + , Be 2 + ), | ( C 3 + , Cu 3 + ), | ( O 1 + , Ni 1 + ), |
| ( Mo 3 + , Be 2 + ), | ( C 3 + , Br 3 + ), | ( O 1 + , Cu 1 + ), |
| ( Bi 3 + , Be 2 + ), | ( C 3 + , Kr 3 + ), | ( O 1 + , Ge 1 + ), |
| ( Be 2 + , Ne 5 + ), | ( C 3 + , Cd 3 + ), | ( O 1 + , Zr 1 + ), |
| ( Be 2 + , Kr 8 + ), | ( C 3 + , Te 4 + ), | ( O 1 + , Nb 1 + ), |
| ( Be 2 + , Mo 7 + ), | ( C 3 + , Ce 4 + ), | ( O 1 + , Mo 1 + ), |
| ( Be 3 + , Al 6 + ), | ( Se 3 + , N 1 + ), | ( O 1 + , Tc 1 + ), |
| ( Br 2 + , B 1 + ), | ( Eu 3 + , N 1 + ), | ( O 1 + , Ru 1 + ), |
| ( Ce 3 + , B 1 + ), | ( Ho 3 + , N 1 + ), | ( O 1 + , Rh 1 + ), |
| ( Cl 3 + , B 2 + ), | ( Er 3 + , N 1 + ), | ( O 1 + , Ag 1 + ), |
| ( O 1 + , Sn 1 + ), | ( Ar 5 + , F 3 + ), | ( Hf 3 + , Na 1 + ), |
| ( O 1 + , Ta 1 + ), | ( Cr 5 + , F 3 + ), | ( Na 1 + , Al 2 + ), |
| ( O 1 + , W 1 + ), | ( F 2 + , Ni 3 + ), | ( Na 1 + , P 2 + ), |
| ( O 1 + , Re 1 + ), | ( F 2 + , Ge 3 + ), | ( Ar 4 + , Na 2 + ), |
| ( O 1 + , Pb 1 + ), | ( Sr 5 + , F 3 + ), | ( Fe 4 + , Na 2 + ), |
| ( O 1 + , Bi 1 + ), | ( F 2 + , Zr 4 + ), | ( Ni 4 + , Na 2 + ), |
| ( O 2 + , Ar 2 + ), | ( F 2 + , Ag 3 + ), | ( Na 1 + , Pd 2 + ), |
| ( K 4 + , O 3 + ), | ( F 4 + , F 4 + ), | ( Na 1 + , In 2 + ), |
| ( O 2 + , Ti 3 + ), | ( Cl 6 + , F 4 + ), | ( Na 1 + , I 2 + ), |
| ( Zn 4 + , O 3 + ), | ( F 3 + , Ar 4 + ), | ( Na 1 + , La 3 + ), |
| ( O 2 + , Rb 2 + ), | ( F 3 + , Zn 4 + ), | ( Na 1 + , Ce 3 + ), |
| ( O 2 + , Mo 3 + ), | ( F 3 + , Br 5 + ), | ( Na 3 + , Na 3 + ), |
| ( O 3 + , Cr 4 + ), | ( F 3 + , Te 5 + ), | ( K 5 + , Na 3 + ), |
| ( O 3 + , As 4 + ), | ( F 4 + , F 4 + ), | ( Na 2 + , Ti 4 + ), |
| ( O 3 + , La 4 + ), | ( Mg 4 + , F 5 + ), | ( Ti 4 + , Na 3 + ), |
| ( Mg 4 + , O 5 + ), | ( F 6 + , F 6 + ), | ( Fe 5 + , Na 3 + ), |
| ( O 5 + , Sc 6 + ), | ( Cr 7 + , F 6 + ), | ( Rb 6 + , Na 3 + ), |
| ( Cu 7 + , O 6 + ), | ( F 5 + , Co 7 + ), | ( Na 2 + , Sr 3 + ), |
| ( O 5 + , Kr 7 + ), | ( F 5 + , Y 8 + ), | ( Na 2 + , Sb 4 + ), |
| ( Si 3 + , F 1 + ), | ( F 6 + , F 6 + ), | ( Na 2 + , Gd 4 + ), |
| ( K 2 + , F 1 + ), | ( F 6 + , Ne 6 + ), | ( Na 2 + , Yb 4 + ), |
| ( Ge 3 + , F 1 + ), | ( F 6 + , Co 8 + ), | ( Na 3 + , Na 3 + ), |
| ( Lu 3 + , F 1 + ), | ( Cr 3 + , Ne 1 + ), | ( Kr 7 + , Na 4 + ), |
| ( Bi 3 + , F 1 + ), | ( La 3 + , Ne 1 + ), | ( Na 3 + , Rb 5 + ), |
| ( F 2 + , F 2 + ), | ( Ne 1 + , Cl 1 + ), | ( Na 3 + , Sr 5 + ), |

( Ne 2 + , F 2 + ), ( Ne 1 + , Sc 2 + ), ( Mo 6 + , Na 4 + ),
( F 1 + , Mg 1 + ), ( Ne 1 + , Ti 2 + ), ( Na 3 + , Te 6 + ),
( F 1 + , Sc 1 + ), ( Cr 4 + , Ne 2 + ), ( Si 4 + , Na 5 + ),
( F 1 + , Ti 1 + ), ( Se 4 + , Ne 2 + ), ( Na 4 + , Sc 6 + ),
( F 1 + , V 1 + ), ( Ne 1 + , Zr 2 + ), ( Cu 7 + , Na 5 + ),
( F 1 + , Cr 1 + ), ( Mo 5 + , Ne 2 + ), ( Na 4 + , Kr 7 + ),
( F 1 + , Mn 1 + ), ( Ne 1 + , Lu 2 + ), ( S 2 + , Mg 1 + ),
( F 1 + , Fe 1 + ), ( Pb 4 + , Ne 2 + ), ( Ni 2 + , Mg 1 + ),
( F 1 + , Co 1 + ), ( Ar 5 + , Ne 3 + ), ( Br 2 + , Mg 1 + ),
( F 1 + , Ni 1 + ), ( Sc 4 + , Ne 3 + ), ( Ag 2 + , Mg 1 + ),
( F 1 + , Cu 1 + ), ( Cr 5 + , Ne 3 + ), ( Ti 3 + , Mg 2 + ),
( F 1 + , Ge 1 + ), ( Ne 2 + , Ni 3 + ), ( Se 3 + , Mg 2 + ),
( F 1 + , Zr 1 + ), ( Ne 2 + , Br 3 + ), ( Eu 3 + , Mg 2 + ),
( F 1 + , Nb 1 + ), ( Sr 5 + , Ne 3 + ), ( Ho 3 + , Mg 2 + ),
( F 1 + , Mo 1 + ), ( Ar 6 + , Ne 4 + ), ( Er 3 + , Mg 2 + ),
( F 1 + , Tc 1 + ), ( Ne 3 + , Cr 5 + ), ( Tm 3 + , Mg 2 + ),
( F 1 + , Ru 1 + ), ( Fe 6 + , Ne 4 + ), ( Pb 3 + , Mg 2 + ),
( F 1 + , Rh 1 + ), ( Nb 6 + , Ne 4 + ), ( Ni 5 + , Mg 3 + ),
( F 1 + , Ag 1 + ), ( Ne 3 + , Pb 5 + ), ( Zn 5 + , Mg 3 + ),
( F 1 + , Sn 1 ), ( Ne 4 + , Na 4 + ), ( Mg 2 + , Kr 4 + ),
( F 1 + , Hf 1 + ), ( Al 4 + , Ne 5 + ), ( Mg 2 + , Rb 4 + ),
( F 1 + , Ta 1 + ), ( Ne 4 + , Fe 6 + ), ( Sb 5 + , Mg 3 + ),
( F 1 + , Re 1 + ), ( Ne 4 + , Rb 7 + ), ( Mg 3 + , Se 6 + ),
( F 1 + , Pb 1 + ), ( Si 2 + , Na 1 + ), ( Mg 3 + , Zr 5 + ),
( F 1 + , Bi 1 + ), ( Co 2 + , Na 1 + ), ( Te 6 + , Mg 4 + ),
( F 2 + , F 2 + ), ( Pd 2 + , Na 1 + ), ( Mg 4 + , Cl 7 + ),
( F 2 + , S 3 + ), ( I 2 + , Na 1 + ), ( Ti 7 + , Mg 5 + ),
( Mg 5 + , Sc 8 + ), ( Si 2 + , Ac 1 + ), ( S 2 + , Ti 1 + ),
( Mg 6 + , Mn 8 + ), ( Si 2 + , Th 1 + ), ( S 2 + , V 1 + ),
( Si 2 + , Al 1 + ), ( Si 2 + , Pa 1 + ), ( S 2 + , Cr 1 + ),
( Mn 2 + , Al 1 + ), ( Si 2 + , U 1 + ), ( S 2 + , Mn 1 + ),
( Co 2 + , Al 1 + ), ( Si 2 + , Np 1 + ), ( S 2 + , Ni 1 + ),
( Ge 2 + , Al 1 + ), ( Si 2 + , Pu 1 + ), ( S 2 + , Cu 1 + ),
( Zr 3 + , Al 1 + ), ( Si 2 + , Am 1 + ), ( S 2 + , Y 1 + ),
( I 2 + , Al 1 + ), ( Si 2 + , Cm 1 + ), ( S 2 + , Zr 1 + ),
( Hf 3 + , Al 1 + ), ( Si 2 + , Bk 1 + ), ( S 2 + , Nb 1 + ),
( Hg 2 + , Al 1 + ), ( Si 2 + , Cf 1 + ), ( S 2 + , Mo 1 + ),
( S 3 + , Al 2 + ), ( Si 2 + , Es 1 + ), ( S 2 + , Tc 1 + ),
( V 3 + , Al 2 + ), ( S 4 + , Si 4 + ), ( S 2 + , Ru 1 + ),
( Br 3 + , Al 2 + ), ( Sc 3 + , Si 4 + ), ( S 2 + , Rh 1 + ),
( Mo 3 + , Al 2 + ), ( Mn 4 + , Si 4 + ), ( S 2 + , Ag 1 + ),
( Sb 4 + , Al 3 + ), ( Si 3 + , Co 2 + ), ( S 2 + , Sn 1 + ),
( Bi 4 + , Al 3 + ), ( Si 3 + , Zn 2 + ), ( S 2 + , Hf 1 + ),
( Ca 7 + , Al 4 + ), ( Si 3 + , Ru 2 + ), ( S 2 + , Pb 1 + ),
( Al 3 + , Sc 5 + ), ( Si 3 + , Rh 2 + ), ( S 2 + , Bi 1 + ),
( Al 4 + , Kr 8 + ), ( Si 3 + , Cd 2 + ), ( S 2 + , Es 1 + ),
( Al 5 + , Ni 8 + ), ( Sn 4 + , Si 4 + ), ( Ar 4 + , S 4 + ),
( Ni 2 + , Si 1 + ), ( Si 3 + , Bi 2 + ), ( Fe 4 + , S 4 + ),
( Br 2 + , Si 1 + ), ( Si 4 + , Cu 7 + ), ( Ni 4 + , S 4 + ),

( Sr 2 + , Si 2 + ), ( Nb 3 + , P 1 + ), ( S 3 + , Cu 2 + ),
( Sb 3 + , Si 2 + ), ( Pr 3 + , P 1 + ), ( S 3 + , Pd 2 + ),
( Gd 3 + , Si 2 + ), ( S 3 + , P 2 + ), ( S 3 + , In 2 + ),
( Yb 3 + , Si 2 + ), ( Br 3 + , P 2 + ), ( S 3 + , I 2 + ),
( K 3 + , Si 3 + ), ( P 3 + , S 2 + ), ( S 3 + , La 3 + ),
( Si 2 + , Ca 1 + ), ( P 3 + , Cl 2 + ), ( S 3 + , Ce 3 + ),
( Si 2 + , Ga 1 + ), ( Co 4 + , P 4 + ), ( K 5 + , S 5 + ),
( Si 2 + , Sr 1 + ), ( P 3 + , Kr 2 + ), ( S 4 + , Sb 4 + ),
( Si 2 + , Y 1 + ), ( Kr 5 + , P 4 + ), ( S 4 + , Lu 4 + ),
( Y 3 + , Si 3 + ), ( P 3 + , Zr 3 + ), ( S 4 + , Bi 4 + ),
( Mo 4 + , Si 3 + ), ( P 3 + , Sm 3 + ), ( S 5 + , Ar 4 + ),
( Si 2 + , In 1 + ), ( P 3 + , Tm 3 + ), ( S 5 + , K 4 + ),
( Si 2 + , Ba 1 + ), ( P 3 + , Hf 3 + ), ( S 5 + , Br 5 + ),
( Si 2 + , La 1 + ), ( P 4 + , Cu 3 + ), ( Y 6 + , S 6 + ),
( Si 2 + , Ce 1 + ), ( Ge 4 + , P 5 + ), ( Ar 2 + , Cl 1 + ),
( Si 2 + , Pr 1 + ), ( P 4 + , Kr 3 + ), ( Rb 2 + , Cl 1 + ),
( Si 2 + , Nd 1 + ), ( Y 5 + , P 5 + ), ( Sn 3 + , Cl 1 + ),
( Si 2 + , Pm 1 + ), ( P 4 + , Cd 3 + ), ( Nd 3 + , Cl 1 + ),
( Si 2 + , Sm 1 + ), ( P 4 + , Te 4 + ), ( Pm 3 + , Cl 1 + ),
( Si 2 + , Eu 1 + ), ( P 4 + , Ce 4 + ), ( Sm 3 + , Cl 1 + ),
( Si 2 + , Gd 1 + ), ( P 5 + , Br 8 + ), ( Ca 2 + , Cl 2 + ),
( Si 2 + , Tb 1 + ), ( P 7 + , S 7 + ), ( Mn 3 + , Cl 2 + ),
( Si 2 + , Dy 1 + ), ( Nb 3 + , S 1 + ), ( Co 3 + , Cl 2 + ),
( Si 2 + , Ho 1 + ), ( Cd 2 + , S 1 + ), ( Cl 4 + , Cl 3 + ),
( Si 2 + , Er 1 + ), ( Te 3 + , S 1 + ), ( Cl 2 + , Ca 2 + ),
( Si 2 + , Tm 1 + ), ( Ca 2 + , S 2 + ), ( Ca 3 + , Cl 3 + ),
( Si 2 + , Yb 1 + ), ( Mn 3 + , S 2 + ), ( Cl 2 + , Br 1 + ),
( Si 2 + , Lu 1 + ), ( Co 3 + , S 2 + ), ( Cl 2 + , Y 2 + ),
( Si 2 + , Tl 1 + ), ( Nb 4 + , S 2 + ), ( Mo 5 + , Cl 3 + ),
( Si 2 + , Ra 1 + ), ( S 2 + , Sc 1 + ), ( Cl 2 + , Xe 1 + ),
( Cl 2 + , Eu 2 + ), ( Br 6 + , Ar 5 + ), ( Pr 3 + , Ca 2 + ),
( Cl 2 + , Gd 2 + ), ( Nb 5 + , Ar 5 + ), ( Tb 3 + , Ca 2 + ),
( Cl 2 + , Tb 2 + ), ( Ti 5 + , Ar 6 + ), ( Kr 5 + , Ca 3 + ),
( Cl 2 + , Dy 2 + ), ( Mn 6 + , Ar 6 + ), ( Ca 2 + , Zr 3 + ),
( Cl 2 + , Ho 2 + ), ( Ar 5 + , Ga 4 + ), ( Ca 2 + , Sm 3 + ),
( Cl 2 + , Er 2 + ), ( Ar 5 + , As 5 + ), ( Ca 2 + , Dy 3 + ),
( Cl 2 + , Tm 2 + ), ( Ar 7 + , Y 7 + ), ( Ca 2 + , Ho 3 + ),
( Cl 2 + , Yb 2 + ), ( K 1 + , K 1 + ), ( Ca 2 + , Er 3 + ),
( Se 5 + , Cl 4 + ), ( Xe 2 + , K 1 + ), ( Ca 2 + , Tm 3 + ),
( Zr 4 + , Cl 4 + ), ( Pb 2 + , K 1 + ), ( Ca 2 + , Hf 3 + ),
( Cl 3 + , Nb 3 + ), ( K 1 + , K 1 + ), ( Mn 5 + , Ca 4 + ),
( Cl 3 + , Sb 3 + ), ( Zn 3 + , K 2 + ), ( Ca 3 + , Zn 3 + ),
( Cl 3 + , Cs 2 + ), ( Br 4 + , K 2 + ), ( Ca 3 + , Rb 3 + ),
( Cl 3 + , Yb 3 + ), ( K 1 + , Rb 1 + ), ( Ca 3 + , Pr 4 + ),
( Cl 3 + , Bi 3 + ), ( Te 4 + , K 2 + ), ( Ca 3 + , Tb 4 + ),
( Cl 4 + , Cl 3 + ), ( K 1 + , Cs 1 + ), ( Ca 4 + , Sr 4 + ),
( Cl 4 + , Ar 3 + ), ( Sc 3 + , K 3 + ), ( Ca 4 + , Sb 5 + ),
( Mn 5 + , Cl 5 + ), ( K 2 + , Ni 2 + ), ( Ca 4 + , Bi 5 + ),
( Cl 4 + , Zn 3 + ), ( K 2 + , Zn 2 + ), ( Ca 5 + , Se 6 + ),

| | | |
|---|---|---|
| ( Cl 4 + , Rb 3 + ), | ( K 2 + , As 2 + ), | ( Rb 7 + , Ca 6 + ), |
| ( Cl 4 + , Sn 4 + ), | ( K 2 + , Rh 2 + ), | ( Ca 5 + , Zr 5 + ), |
| ( Cl 4 + , Nd 4 + ), | ( K 2 + , Te 2 + ), | ( Te 6 + , Ca 6 + ), |
| ( Cl 4 + , Tb 4 + ), | ( K 2 + , Pt 2 + ), | ( Ca 6 + , Ti 5 + ), |
| ( Ar 6 + , Cl 6 + ), | ( K 3 + , Mn 3 + ), | ( Se 6 + , Ca 7 + ), |
| ( Cl 5 + , Cr 5 + ), | ( K 3 + , Co 3 + ), | ( Ca 7 + , Ti 6 + ), |
| ( Fe 6 + , Cl 6 + ), | ( Br 5 + , K 4 + ), | ( Ca 7 + , Mn 7 + ), |
| ( Nb 6 + , Cl 6 + ), | ( K 3 + , Pd 3 + ), | ( Mn 2 + , Sc 1 + ), |
| ( Cl 5 + , Pb 5 + ), | ( K 3 + , I 3 + ), | ( Ge 2 + , Sc 1 + ), |
| ( Ti 3 + , Ar 1 + ), | ( K 3 + , Hf 4 + ), | ( Zr 3 + , Sc 1 + ), |
| ( Se 3 + , Ar 1 + ), | ( Bi 5 + , K 4 + ), | ( Ag 2 + , Sc 1 + ), |
| ( Sr 2 + , Ar 1 + ), | ( Sc 5 + , K 5 + ), | ( Hg 2 + , Sc 1 + ), |
| ( Sb 3 + , Ar 1 + ), | ( K 4 + , Fe 4 + ), | ( Rb 2 + , Sc 2 + ), |
| ( Gd 3 + , Ar 1 + ), | ( K 4 + , Ni 4 + ), | ( Sn 3 + , Sc 2 + ), |
| ( Yb 3 + , Ar 1 + ), | ( K 4 + , Cu 4 + ), | ( Nd 3 + , Sc 2 + ), |
| ( Fe 3 + , Ar 2 + ), | ( Kr 6 + , K 5 + ), | ( Pm 3 + , Sc 2 + ), |
| ( Ni 3 + , Ar 2 + ), | ( Ca 6 + , K 6 + ), | ( Kr 3 + , Sc 3 + ), |
| ( Cu 3 + , Ar 2 + ), | ( V 5 + , K 6 + ), | ( Rb 3 + , Sc 3 + ), |
| ( Sb 4 + , Ar 2 + ), | ( K 5 + , Mn 5 + ), | ( Sc 3 + , Ge 4 + ), |
| ( Bi 4 + , Ar 2 + ), | ( As 5 + , K 6 + ), | ( Sc 3 + , Mo 4 + ), |
| ( Ar 2 + , Sc 2 + ), | ( K 5 + , Sr 5 + ), | ( Sc 3 + , Lu 4 + ), |
| ( Ar 2 + , Ti 2 + ), | ( K 5 + , Sn 5 + ), | ( Sc 3 + , Bi 4 + ), |
| ( Se 4 + , Ar 3 + ), | ( K 7 + , Ca 7 + ), | ( Ti 5 + , Sc 5 + ), |
| ( Ar 2 + , Zr 2 + ), | ( K 7 + , As 6 + ), | ( Mn 6 + , Sc 5 + ), |
| ( Mo 5 + , Ar 3 + ), | ( K 7 + , Mo 7 + ), | ( Sc 4 + , Ga 4 + ), |
| ( Pb 4 + , Ar 3 + ), | ( Mn 2 + , Ca 1 + ), | ( Sc 4 + , As 5 + ), |
| ( Ar 3 + , K 2 + ), | ( Co 2 , Ca 1 + ), | ( Cu 6 + , Sc 6 + ), |
| ( Ar 3 + , Xe 3 + ), | ( Ge 2 + , Ca 1 + ), | ( Cu 7 + , Sc 7 + ), |
| ( Ar 3 + , Pb 3 + ), | ( Zr 3 + , Ca 1 + ), | ( Ni 2 + , Ti 1 + ), |
| ( Bi 5 + , Ar 4 + ), | ( Hf 3 + , Ca 1 + ), | ( Ge 2 + , Ti 1 + ), |
| ( Ar 4 + , V 4 + ), | ( Hg 2 + , Ca 1 + ), | ( Zr 3 + , Ti 1 + ), |
| ( Cu 5 + , Ar 5 + ), | ( Zn 2 + , Ca 2 + ), | ( Ag 2 + , Ti 1 + ), |
| ( Ar 4 + , Br 4 + ), | ( Rb 2 + , Ca 2 + ), | ( Hg 2 + , Ti 1 + ), |
| ( Sn 3 + , Ti 2 + ), | ( Se 6 + , V 6 + ), | ( Mn 2 + , Dy 1 + ), |
| ( Pm 3 + , Ti 2 + ), | ( V 6 + , Sr 8 + ), | ( Mn 2 + , Ho 1 + ), |
| ( Sm 3 + , Ti 2 + ), | ( Ni 2 + , Cr 1 + ), | ( Mn 2 + , Er 1 + ), |
| ( Dy 3 + , Ti 2 + ), | ( Ge 2 + , Cr 1 + ), | ( Mn 2 + , Tm 1 + ), |
| ( Fe 3 + , Ti 3 + ), | ( Zr 3 + , Cr 1 + ), | ( Mn 2 + , Yb 1 + ), |
| ( Ni 3 + , Ti 3 + ), | ( Ag 2 + , Cr 1 + ), | ( Mn 2 + , Lu 1 + ), |
| ( Cu 3 + , Ti 3 + ), | ( Hg 2 + , Cr 1 + ), | ( Mn 2 + , Hf 1 + ), |
| ( Ti 3 + , Mn 2 + ), | ( Sr 2 + , Cr 2 + ), | ( Mn 2 + , Tl 1 + ), |
| ( Ti 3 + , Fe 2 + ), | ( Sb 3 + , Cr 2 + ), | ( Mn 2 + , Ra 1 + ), |
| ( Ti 3 + , Ge 2 + ), | ( Gd 3 + , Cr 2 + ), | ( Mn 2 + , Ac 1 + ), |
| ( Rb 4 + , Ti 4 + ), | ( Yb 3 + , Cr 2 + ), | ( Mn 2 + , Th 1 + ), |
| ( Sr 4 + , Ti 4 + ), | ( Zn 3 + , Cr 3 + ), | ( Mn 2 + , Pa 1 + ), |
| ( Ti 3 + , Mo 2 + ), | ( Te 4 + , Cr 3 + ), | ( Mn 2 + , U 1 + ), |
| ( Ti 3 + , Tc 2 + ), | ( Cr 2 + , Cs 1 + ), | ( Mn 2 + , Np 1 + ), |
| ( Te 5 + , Ti 4 + ), | ( Cr 3 + , Se 2 + ), | ( Mn 2 + , Pu 1 + ), |
| ( Ti 3 + , Hf 2 + ), | ( Cr 3 + , Br 2 + ), | ( Mn 2 + , Am 1 + ), |

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(Ag 2+, V 1+),
(Hg 2+, V 1+),
(Se 3+, V 2+),
(Eu 3+, V 2+),
(Ho 3+, V 2+),
(Er 3+, V 2+),
(Tm 3+, V 2+),
(Pb 3+, V 2+),
(Sr 3+, V 3+),
(Fe 4+, V 4+),
(V 3+, As 2+),
(V 3+, Pd 2+),
(V 3+, In 2+),
(V 3+, Te 2+),
(V 3+, I 2+),
(V 3+, La 3+),
(V 3+, Pt 2+),
(V 3+, Hg 2+),
(V 4+, Cu 3+),
(Ge 4+, V 5+),
(V 4+, Kr 3+),
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(V 4+, Ce 4+),
(Fe 5+, Te 6+),
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(Y 3+, Co 3+),
(Mo 4+, Co 3+),
(Co 2+, In 1+),
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(Cr 3+, Tb 3+),
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( Ge 2 + , Nb 1 + ), ( Se 3 + , Tc 2 + ), ( Kr 4 + , Kr 3 + ),
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(I 2+, Sr 1+),
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(Nb 3+, Sr 2+),
(Pr 3+, Sr 2+),
(Sr 4+, Sr 3+),
(Sr 2+, Mo 2+),
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(Te 5+, Sr 3+),
(Sr 3+, Tc 3+),
(Sr 3+, Tl 3+),
(Ag 2+, Ru 1+),
(Sb 3+, Ru 2+),
(Gd 3+, Ru 2+),
(Lu 3+, Ru 2+),
(Sb 4+, Ru 3+),
(Bi 4+, Ru 3+),
(Ag 2+, Rh 1+),

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| ( Sn 3 + , Y 2 + ), | ( Nb 3 + , Ba 2 + ), | ( Lu 3 + , Rh 2 + ), |
| ( Nd 3 + , Y 2 + ), | ( Nb 3 + , La 2 + ), | ( Bi 3 + , Rh 2 + ), |
| ( Tb 3 + , Y 2 + ), | ( Nb 3 + , Ce 2 + ), | ( Te 4 + , Rh 3 + ), |
| ( Y 3 + , Zr 4 + ), | ( Nb 3 + , Pr 2 + ), | ( Rh 2 + , Cs 1 + ), |
| ( Y 3 + , Hf 4 + ), | ( Nb 3 + , Nd 2 + ), | ( Ce 3 + , Pd 1 + ), |
| ( Y 3 + , Hg 3 + ), | ( Nb 3 + , Pm 2 + ), | ( Pd 2 + , In 1 + ), |
| ( Y 4 + , La 4 + ), | ( Nb 3 + , Sm 2 + ), | ( Pd 2 + , Ba 1 + ), |
| ( Y 6 + , Bi 6 + ), | ( Nb 3 + , Eu 2 + ), | ( Pd 2 + , La 1 + ), |
| ( Zr 3 + , Zr 1 + ), | ( Nb 3 + , Hg 1 + ), | ( Pd 2 + , Ce 1 + ), |
| ( Ag 2 + , Zr 1 + ), | ( Nb 3 + , Rn 1 + ), | ( Pd 2 + , Pr 1 + ), |
| ( Hg 2 + , Zr 1 + ), | ( Nb 3 + , Ra 2 + ), | ( Pd 2 + , Nd 1 + ), |
| ( Sn 3 + , Zr 2 + ), | ( Nb 4 + , Nd 3 + ), | ( Pd 2 + , Pm 1 + ), |
| ( Nd 3 + , Zr 2 + ), | ( Nb 4 + , Pm 3 + ), | ( Pd 2 + , Sm 1 + ), |
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| ( Sm 3 + , Zr 2 + ), | ( Nb 4 + , Dy 3 + ), | ( Pd 2 + , Tb 1 + ), |
| ( Dy 3 + , Zr 2 + ), | ( Nb 4 + , Ho 3 + ), | ( Pd 2 + , Dy 1 + ), |
| ( Nb 4 + , Zr 3 + ), | ( Nb 4 + , Er 3 + ), | ( Pd 2 + , Lu 1 + ), |
| ( Zr 3 + , Zr 1 + ), | ( Nb 4 + , Hf 3 + ), | ( Pd 2 + , Ra 1 + ), |
| ( Zr 3 + , Nb 1 + ), | ( Mo 7 + , Nb 7 + ), | ( Pd 2 + , Ac 1 + ), |
| ( Zr 3 + , Mo 1 + ), | ( Ag 2 + , Mo 1 + ), | ( Pd 2 + , Pa 1 + ), |
| ( Zr 3 + , Tc 1 + ), | ( Hg 2 + , Mo 1 + ), | ( Ag 2 + , Ag 1 + ), |
| ( Zr 3 + , Gd 1 + ), | ( Sb 3 + , Mo 2 + ), | ( La 3 + , Ag 2 + ), |
| ( Zr 3 + , Tb 1 + ), | ( Gd 3 + , Mo 2 + ), | ( Ag 2 + , Ag 1 + ), |
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| ( Zr 3 + , Ho 1 + ), | ( Mo 3 + , Rh 2 + ), | ( Ag 2 + , Hf 1 + ), |
| ( Zr 3 + , Er 1 + ), | ( Mo 3 + , In 2 + ), | ( Ag 2 + , Pb 1 + ), |
| ( Zr 3 + , Tm 1 + ), | ( Mo 3 + , Te 2 + ), | ( Ag 2 + , Bi 1 + ), |
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| ( Zr 3 + , Th 1 + ), | ( Mo 4 + , Pd 3 + ), | ( Sb 3 + , Cd 2 + ), |
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| ( Zr 3 + , Cf 1 + ), | ( Eu 3 + , Tc 2 + ), | ( Cd 2 + , Ir 1 + ), |
| ( Zr 3 + , Es 1 + ), | ( Ho 3 + , Tc 2 + ), | ( Cd 2 + , Pt 1 + ), |
| ( Zr 4 + , In 4 + ), | ( Er 3 + , Tc 2 + ), | ( Cd 2 + , Au 1 + ), |
| ( Ag 2 + , Nb 1 + ), | ( Tm 3 + , Tc 2 + ), | ( Cd 2 + , Hg 1 + ), |
| ( Hg 2 + , Nb 1 + ), | ( Yb 3 + , Tc 2 + ), | ( Cd 2 + , Ra 2 + ), |
| ( Sm 3 + , Nb 2 + ), | ( Pb 3 + , Tc 2 + ), | ( I 2 + , In 1 + ), |
| ( Hf 3 + , In 1 + ), | ( Tb 3 + , Xe 1 + ), | ( Hg 2 + , Tb 1 + ), |
| ( Hg 2 + , In 1 + ), | ( Xe 2 + , Cs 1 + ), | ( Tb 3 + , Tb 2 + ), |
| ( Sb 4 + , In 3 + ), | ( Pb 2 + , Cs 1 + ), | ( Tb 3 + , Tb 2 + ), |
| ( Bi 4 + , In 3 + ), | ( Hf 3 + , Ba 1 + ), | ( Tb 3 + , Dy 2 + ), |

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( Te 5 + , Pb 4 + ), ( Nd 3 + , Tm 2 + ), ( Hf 3 + , Th 1 + ),
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( Nd 3 + , Xe 1 + ), ( Hf 3 + , Tb 1 + ), ( Hg 2 + , Cm 1 + ),
( Hg 2 + , Bk 1 + ), ( Hg 2 + , Cf 1 + ), ( Hg 2 + , Es 1 + ),

| | | |
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| ( As 2 + , H ), | ( K 1 + , F ), | ( Cr 2 + , Cl ), |
| ( Ru 2 + , H ), | ( Cr 2 + , F ), | ( Fe 2 + , Cl ), |
| ( In 2 + , H ), | ( Fe 2 , F ), | ( As 2 + , K ), |
| ( Te 2 + , H ), | ( As 2 + , Na ), | ( Ru 2 + , K ), |
| ( Al 2 + , H ), | ( Ru 2 + , Na ), | ( In 2 + , K ), |
| ( Ar 1 + , H ), | ( In 2 + , Na ), | ( Te 2 + , K ), |
| ( As 2 + , Li ), | ( Te 2 + , Na ), | ( Al 2 + , K ), |
| ( Ru 2 + , Li ), | ( Al 2 + , Na ), | ( Ar 1 + , K ), |
| ( In 2 + , Li ), | ( Ar 1 + , Na ), | ( As 2 + , Fe ), |
| ( Te 2 + , Li ), | ( Ti 2 + , Na ), | ( Ru 2 + , Fe ), |
| ( Al 2 + , Li ), | ( As 2 + , Al ), | ( In 2 + , Fe ), |
| ( Ar 1 + , Li ), | ( Ru 2 + , Al ), | ( Te 2 + , Fe ), |
| ( Ti 2 + , Li ), | ( In 2 + , Al ), | ( Al 2 + , Fe ), |
| ( As 2 + , B ), | ( Te 2 + , Al ), | ( Ar 1 + , Fe ), |
| ( Rb 1 + , B ), | ( Al 2 + , Al ), | ( Ti 2 + , Fe ), |
| ( Mo 2 + , B ), | ( Ar 1 + , Al ), | ( As 2 + , Co ), |
| ( Ru 2 + , B ), | ( Ti 2 + , Al ), | ( Ru 2 + , Co ), |
| ( In 2 + , B ), | ( As 2 + , Si ), | ( In 2 + , Co ), |
| ( Te 2 + , B ), | ( Tc 2 + , Si ), | ( Te 2 + , Co ), |
| ( Al 2 + , B ), | ( Ru 2 + , Si ), | ( Al 2 + , Co ), |
| ( Ar 1 + , B ), | ( Tl 2 + , Si ), | ( V 2 + , Co ), |
| ( Ti 2 + , B ), | ( N 1 + , Si ), | ( Tc 2 + , Cu ), |
| ( As 2 + , C ), | ( Al 2 + , Si ), | ( Tl 2 + , Cu ), |
| ( Tc 2 + , C ), | ( V 2 + , Si ), | ( N 1 + , Cu ), |
| ( Ru 2 + , C ), | ( As 2 + , P ), | ( P 2 + , Cu ), |
| ( In 2 + , C ), | ( Ru 2 + , P ), | ( V 2 + , Cu ), |
| ( Te 2 + , C ), | ( In 2 + , P ), | ( Ga 2 + , Br ), |
| ( N 1 + , C ), | ( Te 2 + , P ), | ( Se 2 + , Br ), |
| ( Al 2 + , C ), | ( Al 2 + , P ), | ( Rh 2 + , Br ), |
| ( V 2 + , C ), | ( Ar 1 + , P ), | ( Sn 2 + , Br ), |
| ( As 2 + , O ), | ( Tc 2 + , S ), | ( P 2 + , Br ), |
| ( Tc 2 + , O ), | ( Sn 2 + , S ), | ( K 1 + , Br ), |
| ( Ru 2 + , O ), | ( Tl 2 + , S ), | ( Cr 2 + , Br ), |
| ( Tl 2 + , O ), | ( N 1 + , S ), | ( Fe 2 + , Br ), |
| ( N 1 + , O ), | ( P 2 + , S ), | ( As 2 + , Rb ), |
| ( Al 2 + , O ), | ( V 2 + , S ), | ( Rb 1 + , Rb ), |
| ( V 2 + , O ), | ( Ga 2 + , Cl ), | ( Mo 2 + , Rb ), |
| ( Ga 2 + , F ), | ( Se 2 + , Cl ), | ( Ru 2 + , Rb ), |
| ( Se 2 + , F ), | ( Rh 2 + , Cl ), | ( In 2 + , Rb ), |
| ( Rh 2 + , F ), | ( Sn 2 + , Cl ), | ( Te 2 + , Rb ), |
| ( Sn 2 + , F ), | ( Xe 2 + , Cl ), | ( Al 2 + , Rb ), |
| ( Pb 2 + , F ), | ( Pb 2 + , Cl ), | ( Ru 2 + , Pb ), |
| ( Ar 1 + , Rb ), | ( P 2 + , Tl ), | ( In 2 + , Pb ), |
| ( Ti 2 + , Rb ), | ( V 2 + , Tl ), | ( Te 2 + , Pb ), |
| ( Ga 2 + , I ), | ( Tc 2 + , Au ), | ( Al 2 + , Pb ), |
| ( Se 2 + , I ), | ( Sn 2 + , Au ), | ( V 2 + , Pb ), |
| ( Rh 2 + , I ), | ( Tl 2 + , Au ), | ( Tc 2 + , Po ), |
| ( Sn 2 + , I ), | ( N 1 + , Au ), | ( Tl 2 + , Po ), |

( P 2 + , I ), ( P 2 + , Au ), ( N 1 + , Po ),
( Cr 2 + , I ), ( V 2 + , Au ), ( P 2 + , Po ),
( Fe 2 + , I ), ( As 2 + , Hg ), ( V 2 + , Po ),
( As 2 + , Cs ), ( Tc 2 + , Hg ), ( Ga 2 + , At ),
( Rb 1 + , Cs ), ( Ru 2 + , Hg ), ( Se 2 + , At ),
( Mo 2 + , Cs ), ( Tl 2 + , Hg ), ( Rh 2 + , At ),
( Ru 2 + , Cs ), ( N 1 + , Hg ), ( Sn 2 + , At ),
( In 2 + , Cs ), ( Al 2 + , Hg ), ( Tl 2 + , At ),
( Te 2 + , Cs ), ( V 2 + , Hg ), ( N 1 + , At ),
( Al 2 + , Cs ), ( As 2 + , As ), ( P 2 + , At ),
( Ar 1 + , Cs ), ( Ru 2 + , As ), ( Cr 2 + , At ),
( Ti 2 + , Cs ), ( In 2 + , As ), ( Fe 2 + , At ),
( Tc 2 + , Se ), ( Te 2 + , As ), ( As 2 + , Ge ),
( Tl 2 + , Se ), ( Al 2 + , As ), ( Tc 2 + , Ge ),
( N 1 + , Se ), ( Ar 1 + , As ), ( Ru 2 + , Ge ),
( P 2 + , Se ), ( Ti 2 + , As ), ( In 2 + , Ge ),
( V 2 + , Se ), ( As 2 + , Ce ), ( N 1 + , Ge ),
( Tc 2 + , Te ), ( Tc 2 + , Ce ), ( Al 2 + , Ge ),
( Sn 2 + , Te ), ( Ru 2 + , Ce ), ( V 2 + , Ge ),
( Tl 2 + , Te ), ( In 2 + , Ce ), ( As 2 + , Ga ),
( N 1 + , Te ), ( N 1 + , Ce ), ( Rb 1 + , Ga ),
( P 2 + , Te ), ( Al 2 + , Ce ), ( Ru 2 + , Ga ),
( V 2 + , Te ), ( V 2 + , Ce ), ( In 2 + , Ga ),
( Fe 2 + , Te ), ( As 2 + , Fr ), ( Te 2 + , Ga ),
( As 2 + , As ), ( Rb 1 + , Fr ), ( Al 2 + , Ga ),
( Ru 2 + , As ), ( Ru 2 + , Fr ), ( Ar 1 + , Ga ),
( In 2 + , As ), ( In 2 + , Fr ), ( Ti 2 + , Ga ),
( Te 2 + , As ), ( Te 2 + , Fr ), ( As 2 + , In ),
( Al 2 + , As ), ( Al 2 + , Fr ), ( Rb 1 + , In ),
( Ar 1 + , As ), ( Ar 1 + , Fr ), ( Mo 2 + , In ),
( Ti 2 + , As ), ( Ti 2 + , Fr ), ( Ru 2 + , In ),
( Tc 2 + , Sb ), ( As 2 + , Ge ), ( In 2 + , In ),
( Tl 2 + , Sb ), ( Tc 2 + , Ge ), ( Te 2 + , In ),
( N 1 + , Sb ), ( Ru 2 + , Ge ), ( Al 2 + , In ),
( P 2 + , Sb ), ( In 2 + , Ge ), ( Ar 1 + , In ),
( V 2 + , Sb ), ( N 1 + , Ge ), ( Ti 2 + , In ),
( As 2 + , Bi ), ( Al 2 + , Ge ), ( As 2 + , Ag ),
( Ru 2 + , Bi ), ( V 2 + , Ge ), ( Tc 2 + , Ag ),
( In 2 + , Bi ), ( As 2 + , Sn ), ( Ru 2 + , Ag ),
( Te 2 + , Bi ), ( Tc 2 + , Sn ), ( N 1 + , Ag ),
( Al 2 + , Bi ), ( Ru 2 + , Sn ), ( Al 2 + , Ag ),
( Ar 1 + , Bi ), ( N 1 + , Sn ), ( V 2 + , Ag ),
( Tc 2 + , Tl ), ( Al 2 + , Sn ), ( P 2 + , OH ),
( Sn 2 + , Tl ), ( V 2 + , Sn ), ( V 2 + , OH ),
( Tl 2 + , Tl ), ( As 2 + , Pb ), ( Tc 2 + , SH ),
( N 1 + , Tl ), ( Tc 2 + , Pb ), ( Sn 2 + , SH ),
( Ga 2 + , BF3 ), ( Rh 2 + , UF6 ), ( Tl 2 + , SH ),
( Se 2 + , BF3 ), ( Sn 2 + , UF6 ), ( N 1 + , SH ),
( Tc 2 + , BF3 ), ( Tl 2 + , UF6 ), ( P 2 + , SH ),

| | | |
|---|---|---|
| ( Rh 2 + , BF3 ), | ( P 2 + , UF6 ), | ( V 2 + , SH ), |
| ( Sn 2 + , BF3 ), | ( Cr 2 + , UF6 ), | ( Fe 2 + , SH ), |
| ( Tl 2 + , BF3 ), | ( Fe 2 + , UF6 ), | ( Ga 2 + , CN ), |
| ( N 1 + , BF3 ), | ( Tc 2 + , CF3 ), | ( Se 2 + , CN ), |
| ( P 2 + , BF3 ), | ( Tl 2 + , CF3 ), | ( Rh 2 + , CN ), |
| ( Cr 2 + , BF3 ), | ( N 1 + , CF3 ), | ( Sn 2 + , CN ), |
| ( Fe 2 + , BF3 ), | ( P 2 + , CF3 ), | ( P 2 + , CN ), |
| ( Se 2 + , NO2 ), | ( V 2 + , CF3 ), | ( K 1 + , CN ), |
| ( Rh 2 + , NO2 ), | ( As 2 + , CCl3 ), | ( Cr 2 + , CN ), |
| ( Xe 2 + , NO2 ), | ( Tc 2 + , CCl3 ), | ( Fe 2 + , CN ), |
| ( Pb 2 + , NO2 ), | ( Ru 2 + , CCl3 ), | ( Tc 2 + , SCN ), |
| ( K 1 + , NO2 ), | ( In 2 + , CCl3 ), | ( Sn 2 + , SCN ), |
| ( Cr 2 + , NO2 ), | ( N 1 + , CCl3 ), | ( Tl 2 + , SCN ), |
| ( As 2 + , O2 ), | ( Al 2 + , CCl3 ), | ( N 1 + , SCN ), |
| ( Rb 1 + , O2 ), | ( V 2 + , CCl3 ), | ( P 2 + , SCN ), |
| ( Ru 2 + , O2 ), | ( Ga 2 + , SiF3 ), | ( V 2 + , SCN ), |
| ( In 2 + , O2 ), | ( Se 2 + , SiF3 ), | ( Fe 2 + , SCN ), |
| ( Te 2 + , O2 ), | ( Rh 2 + , SiF3 ), | ( Ga 2 + , SeCN ), |
| ( Al 2 + , O2 ), | ( Sn 2 + , SiF3 ), | ( Se 2 + , SeCN ), |
| ( Ar 1 + , O2 ), | ( P 2 + , SiF3 ), | ( Tc 2 + , SeCN ), |
| ( Ti 2 + , O2 ), | ( K 1 + , SiF3 ), | ( Rh 2 + , SeCN ), |
| ( As 2 + , SF6 ), | ( Cr 2 + , SiF3 ), | ( Sn 2 + , SeCN ), |
| ( Tc 2 + , SF6 ), | ( Fe 2 + , SiF3 ), | ( Tl 2 + , SeCN ), |
| ( Ru 2 + , SF6 ), | ( As 2 + , NH2 ), | ( N 1 + , SeCN ), |
| ( Tl 2 + , SF6 ), | ( Tc 2 + , NH2 ), | ( P 2 + , SeCN ), |
| ( N 1 + , SF6 ), | ( Ru 2 + , NH2 ), | ( Cr 2 + , SeCN ), |
| ( Al 2 + , SF6 ), | ( In 2 + , NH2 ), | ( Fe 2 + , SeCN ), |
| ( V 2 + , SF6 ), | ( Te 2 + , NH2 ), | ( Tl 2 + , PH 2 ), |
| ( Ga 2 + , WF6 ), | ( N 1 + , NH2 ), | ( N 1 + , PH 2 ), |
| ( Se 2 + , WF6 ), | ( Al 2 + , NH2 ), | ( Al 2 + , PH 2 ), |
| ( Tc 2 + , WF6 ), | ( V 2 + , NH2 ), | ( V 2 + , PH 2 ), |
| ( Rh 2 + , WF6 ), | ( Tc 2 + , PH 2 ), | ( Tc 2 + , OH ), |
| ( Sn 2 + , WF6 ), | ( Ru 2 + , PH 2 ), | ( Tl 2 + , OH ), |
| ( Tl 2 + , WF6 ), | ( Fe 2 + , WF6 ), | ( N 1 + , OH ), |
| ( N 1 + , WF6 ), | ( Ga 2 + , UF6 ), | ( Cr 2 + , WF6 ),and |
| | (Se 2 + , UF6 ), | ( P 2 + , WF6 ). |

112. (Previously Presented) An explosive material comprising:

a source of at least one hydrino hydride ion; and

a source of protons.

113. (Previously Presented) An explosive material according to claim 112, wherein said source of said protons comprises an acid.

114. (Previously Presented) An explosive material according to claim 113, wherein said acid is a super-acid.

115. (Previously Presented) An explosive material according to claim 113, wherein said acid is selected from the group consisting of HF, HCl, $H_2SO_4$, $HNO_3$, the reaction products of HF and $SbF_5$, the reaction products of HCl and $Al_2Cl_6$, the reaction products of $H_2SO_3F$ and $SbF_5$, the reaction products of $H_2SO_4$ and $SO_2$, and combinations thereof.

116. (Previously Presented) An explosive material according to claim 112, wherein said source of protons comprises $H^1$.

117. (Previously Presented) An explosive material according to claim 112, wherein said source of protons comprises $H^2$.

118. (Previously Presented) An explosive material according to claim 112, wherein said source of protons comprises $H^3$.

119. (Previously Presented) An explosive material according to claim 112, wherein said source of hydride ion comprises at least one compound comprising a hydrino hydride ion and at least one other element.

120. (Previously Presented) An explosive material according to claim 119, wherein said compound comprises at least one hydrino atom having a binding energy of about $13.6/n^2$eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

121. (Previously Presented) An explosive material according to claim 119, wherein said

compound comprises at least one dihydrino molecule having a first binding energy of about $15.5/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

122. (Previously Presented) An explosive material according to claim 119, wherein said compound comprises at least one dihydrino molecular ion having a first binding energy of about $16.4/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1, and at least one other element.

123. (Previously Presented) An explosive material according to claim 119, wherein said compound comprises a hydrino hydride ion having a binding energy of about 0.65 eV and at least one other element.

124. (Previously Presented) An explosive material according to claim 119, wherein the compound further comprises one or more selected from the group consisting of ordinary hydrogen molecules, ordinary hydride ions, ordinary hydrogen atoms, protons, ordinary hydrogen molecular ions, and ordinary $H^{3+}$ions; and said method further comprises decomposing said compound to provide said hydrino hydride ion and protons.

125. (Previously Presented) An explosive material according to claim 119, wherein the compound has a formula selected from the group of formulae consisting of MH, $MH_2$, and $M_2H_2$ wherein M is an alkali cation and H is selected from the group consisting of increased binding energy hydride ions, hydrino atoms and dihydrino molecules.

126. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MH_n$ wherein n is 1 or 2, M is an alkaline earth cation and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

127. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula MHX wherein M is an alkali cation, X is one of a neutral atom, a molecule, or a singly negatively charged anion, and H is elected from the group consisting of hydrino hydride ions and hydrino atoms.

128. (Previously Presented) An explosive material according to claim 127, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

129. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

130. (Previously Presented) An explosive material according to claim 129, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

131. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a doubly negatively charged anion, and H is a hydrino atom.

132. (Previously Presented) An explosive material according to claim 131, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

133. (Previously Presented) An explosive material according to claim 119, wherein the

compound has the formula $M_2HX$ wherein M is an alkali cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

134. (Previously Presented) An explosive material according to claim 133, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

135. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MH_n$ wherein n is an integer from 1 to 5, M is an alkali cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

136. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2H_n$ wherein n is an integer from 1 to 4, M is an alkaline earth cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

137. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2XH_n$ wherein n is an integer from 1 to 3, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

138. (Previously Presented) An explosive material according to claim 137, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

139. (Previously Presented) An explosive material according to claim 119, wherein the

compound has the formula $M_2X_2H_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

140. (Previously Presented) An explosive material according to claim 139, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

141. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2X_3H$ wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

142. (Previously Presented) An explosive material according to claim 141, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

143. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2XH_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

144. (Previously Presented) An explosive material according to claim 143, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

145. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2XX'H$ wherein M is an alkaline earth cation, X is a singly

negatively charged anion, $X'$ is a doubly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

146. (Previously Presented) An explosive material according to claim 145, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

147. (Previously Presented) An explosive material according to claim 145, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

148. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MM'H_n$ wherein n is and integer from 1 to 3, M is an alkaline earth cation, M' is an alkali metal cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

149. (Previously Presented) An explosive material according to claim 119, wherein the compound is $MM'XH_n$ wherein n is 1 to 2, M is an alkaline earth cation, $M'$ is an alkali metal cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

150. (Previously Presented) An explosive material according to claim 149, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

151. (Previously Presented) An explosive material according to claim 119, wherein the compound is MM'XH where M is an alkaline earth cation, M' is an alkali metal cation, X is a doubly negatively charged anion, and H is selected from the group consisting

of hydrino hydride ions and hydrino atoms.

152. (Previously Presented) An explosive material according to claim 151, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

153. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula MM'XX'H where M is an alkaline earth cation, M' is an alkali metal cation, X and X' are each a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

154. (Previously Presented) An explosive material according to claim 153, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

155. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $H_nS$ wherein n is 1 or 2, and the hydrogen content of $H_n$ comprises at least one increased binding energy hydrogen species.

156. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content of $H_n$ comprises at least one increased binding energy hydrogen species.

157. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MXM'H_n$ wherein n is an integer from 1 to 5;

M is an alkali or alkaline earth cation;

X is a singly negatively charged anion or a doubly negatively charged anion;

M' is selected from the group consisting of Si, Al, Ni, the transition elements, the inner transition elements, and the rare earth elements; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

158. (Previously Presented) An explosive material according to claim 157, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

159. (Previously Presented) An explosive material according to claim 157, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

160. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MAlH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

161. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of the transition elements, the inner transition elements, and the rare earth element cations and nickel; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

162. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MNiH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

163. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MM'H_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum;

M' is selected from the group consisting of the transition elements, the inner transition elements, and rare earth element cations; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

164. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

165. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $Si_2H_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

166. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $SiH_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

167. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $TiH_n$ wherein n is an integer from 1 to 4, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

168. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $Al_2H_n$ wherein n is an integer from 1 to 4 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

169. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MXAlX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

170. (Previously Presented) An explosive material according to claim 169, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

171. (Previously Presented) An explosive material according to claim 169, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

172. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MXSiX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

173. (Previously Presented) An explosive material according to claim 172, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

174. (Previously Presented) An explosive material according to claim 172, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

175. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $SiO_2H_n$ wherein n is an integer from 1 to 6 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

176. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

177. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $MSi_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

178. (Previously Presented) An explosive material according to claim 119, wherein the compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

179. (Previously Presented) An explosive material according to claim 119, wherein the compound is greater that 50 atomic percent pure.

180. (Previously Presented) An explosive material according to claim 119, wherein the compound is greater that 90 atomic percent pure.

181. (Previously Presented) An explosive material according to claim 119, wherein said at least one other element comprises at least one selected from the group consisting of a proton, ordinary hydrogen atom, ordinary hydrogen ions, ordinary hydrogen molecules, ordinary hydrogen molecular ions and ordinary $H_3^+$ ion.

182. (Previously Presented) An explosive material according to claim 119, wherein said at least one other element comprises at least one element selected from the group consisting of alkaline earth metals and alkali metals.

183. (Previously Presented) An explosive material according to claim 182, wherein said element comprises lithium or lithium ion.

184. (Previously Presented) An explosive material according to claim 119, wherein said at least one other element comprises at least one element selected from the group consisting of organic compounds.

185. (Previously Presented) An explosive material according to claim 119, wherein said at least one other element comprises at least one element selected from the group consisting of semiconductors.

186. (Previously Presented) An explosive material according to claim 119, wherein said compound comprising:

(a) at least one neutral, positive or negative increased binding energy hydrogen species having a binding energy:

(i) greater than the binding energy of the corresponding ordinary hydrogen species, or

(ii) greater than the binding energy of any hydrogen species for which the corresponding ordinary hydrogen species is unstable or is not observed because the ordinary hydrogen species' binding energy is less than thermal energies at ambient conditions, or is negative; and

(b) at least one other element, wherein said increased binding energy hydrogen species is selected from the group consisting of $H_n$, $H_n^-$, and $H_n^+$, where n is an integer of 1 to 8, and n is greater than 1 when H has a positive charge.

187. (Previously Presented) An explosive material according to claim 186, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a

binding energy greater than about 16.4 eV.

188. (Previously Presented) An explosive material according to claim 186, wherein the increased binding energy hydrogen species comprises a hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

189. (Previously Presented) An explosive material according to claim 186, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and $e$ is the elementary charge.

190. (Previously Presented) An explosive material according to claim 186, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/(1/p)$^2$, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, $H_3^+$ (1/p), having a binding energy of about $22.6/(1/p)^2$ eV; (d) a dihydrino molecule having a binding energy of about $15.5/(1/p)^2$ eV; and (e) a dihydrino molecular ion with a binding energy of about $16.4/(1/p)^2$ eV.

191. (Previously Presented) An explosive material according to claim 190, wherein p is 2 to 200.

192. (Previously Presented) An explosive material according to claim 190, wherein p is 2 to 24.

193. (Previously Presented) An explosive material according to claim 190, wherein said increased binding energy hydrogen species is negative.

194. (Previously Presented) An explosive material according to claim 112, wherein said source of hydrino hydride ion comprises a source of 2 or more types of hydrino hydride ions.

195. (Previously Presented) An explosive device comprising:

a walled structure containing (Previously Presented) An explosive material, wherein said explosive material comprises a source of at least one hydrino hydride ion

and a source of protons.

196. (Previously Presented) An explosive device according to claim 195, wherein said device comprises a bullet containing said explosive material.

197. (Previously Presented) An explosive device according to claim 195, further comprising a detonator.

198. (Previously Presented) An explosive device according to claim 197, wherein said detonator comprises (Previously Presented) An explosive.

199. (Previously Presented) An explosive device according to claim 195, wherein said source of said protons comprises an acid.

200. (Previously Presented) An explosive device according to claim 199, wherein said acid is a super-acid.

201. (Previously Presented) An explosive device according to claim 199, wherein said acid is selected from the group consisting of HF, HCl, $H_2SO_4$, $HNO_3$, the reaction products of HF and $SbF_5$, the reaction products of HCl and $Al_2Cl_6$, the reaction products of $H_2SO_3F$ and $SbF_5$, the reaction products of $H_2SO_4$ and $SO_2$, and combinations thereof.

202. (Previously Presented) An explosive device according to claim 195, wherein said source of protons comprises $H^1$.

203. (Previously Presented) An explosive device according to claim 195, wherein said source of protons comprises $H^2$.

204. (Previously Presented) An explosive device according to claim 195, wherein said source of protons comprises $H^3$.

205. (Previously Presented) An explosive device according to claim 195, wherein said source of hydride ion comprises at least one compound comprising a hydrino hydride ion and at least one other element.

206. (Previously Presented) An explosive device according to claim 205, wherein said compound comprises at least one hydrino atom having a binding energy of about $13.6/n^2$eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

207. (Previously Presented) An explosive device according to claim 205, wherein said compound comprises at least one dihydrino molecule having a first binding energy of about $15.5/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1 and at least one other element.

208. (Previously Presented) An explosive device according to claim 205, wherein said compound comprises at least one dihydrino molecular ion having a first binding energy of about $16.4/n^2$ eV, wherein n is a fraction whose numerator is 1 and denominator is an integer greater than 1, and at least one other element.

209. (Previously Presented) An explosive device according to claim 205, wherein said compound comprises a hydrino hydride ion having a binding energy of about 0.65 eV and at least one other element.

210. (Previously Presented) An explosive device according to claim 205, wherein the compound further comprises one or more selected from the group consisting of

ordinary hydrogen molecules, ordinary hydride ions, ordinary hydrogen atoms, protons, ordinary hydrogen molecular ions, and ordinary $H^{3+}$ions.

211. (Previously Presented) An explosive device according to claim 205, wherein the compound has a formula selected from the group of formulae consisting of MH, $MH_2$, and $M_2H_2$ wherein M is an alkali cation and H is selected from the group consisting of hydrino hydride ions, hydrino atoms and dihydrino molecules.

212. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MH_n$ wherein n is 1 or 2, M is an alkaline earth cation and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

213. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula MHX wherein M is an alkali cation, X is one of a neutral atom, a molecule, or a singly negatively charged anion, and H is elected from the group consisting of hydrino hydride ions and hydrino atoms.

214. (Previously Presented) An explosive device according to claim 213, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

215. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

216. (Previously Presented) An explosive device according to claim 215, wherein said singly negatively charged anion is selected from the group consisting of halogen ions,

hydroxide ions, hydrogen carbonate ions, and nitrate ions.

217. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula MHX wherein M is an alkaline earth cation, X is a doubly negatively charged anion, and H is a hydrino atom.

218. (Previously Presented) An explosive device according to claim 217, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

219. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2HX$ wherein M is an alkali cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

220. (Previously Presented) An explosive device according to claim 219, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

221. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MH_n$ wherein n is an integer from 1 to 5, M is an alkali cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

222. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2H_n$ wherein n is an integer from 1 to 4, M is an alkaline earth cation and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

223. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2XH_n$ wherein n is an integer from 1 to 3, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

224. (Previously Presented) An explosive device according to claim 223, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

225. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2X_2H_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

226. (Previously Presented) An explosive device according to claim 225, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

227. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2X_3H$ wherein M is an alkaline earth cation, X is a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

228. (Previously Presented) An explosive device according to claim 227, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

229. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2XH_n$ wherein n is 1 or 2, M is an alkaline earth cation, X is a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

230. (Previously Presented) An explosive device according to claim 229, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

231. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2XX'H$ wherein M is an alkaline earth cation, X is a singly negatively charged anion, $X'$ is a doubly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

232. (Previously Presented) An explosive device according to claim 231, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

233. (Previously Presented) An explosive device according to claim 231, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

234. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MM'H_n$ wherein n is and integer from 1 to 3, M is an alkaline earth cation, M' is an alkali metal cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

235. (Previously Presented) An explosive device according to claim 205, wherein the

compound is $MM'XH_n$ wherein n is 1 to 2, M is an alkaline earth cation, M' is an alkali metal cation, X is a singly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

236. (Previously Presented) An explosive device according to claim 235, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

237. (Previously Presented) An explosive device according to claim 205, wherein the compound is MM'XH where M is an alkaline earth cation, M' is an alkali metal cation, X is a doubly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

238. (Previously Presented) An explosive material according to claim 237, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

239. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula MM'XX'H where M is an alkaline earth cation, M' is an alkali metal cation, X and X' are each a singly negatively charged anion, and H is selected from the group consisting of hydrino hydride ions and hydrino atoms.

240. (Previously Presented) An explosive device according to claim 239, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

241. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $H_nS$ wherein n is 1 or 2, and the hydrogen content of $H_n$

comprises at least one increased binding energy hydrogen species.

242. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MSiH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content of $H_n$ comprises at least one increased binding energy hydrogen species.

243. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MXM'H_n$ wherein n is an integer from 1 to 5;

M is an alkali or alkaline earth cation;

X is a singly negatively charged anion or a doubly negatively charged anion;

M' is selected from the group consisting of Si, Al, Ni, the transition elements, the inner transition elements, and the rare earth elements; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

244. (Previously Presented) An explosive device according to claim 243, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

245. (Previously Presented) An explosive device according to claim 243, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

246. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MAlH_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

247. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of the transition elements, the inner transition elements, and the rare earth element cations and nickel; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

248. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MNiH_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

249. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MM'H_n$ wherein:

n is an integer from 1 to 6;

M is selected from the group consisting of alkali cations, alkaline earth cations, silicon, and aluminum;

M' is selected from the group consisting of the transition elements, the inner transition elements, and rare earth element cations; and

the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

250. (Previously Presented) An explosive device according to claim 205, wherein the

compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

251. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $Si_2H_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

252. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $SiH_n$ wherein n is an integer from 1 to 8, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

253. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $TiH_n$ wherein n is an integer from 1 to 4, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

254. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $Al_2H_n$ wherein n is an integer from 1 to 4 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

255. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MXAlX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

256. (Previously Presented) An explosive device according to claim 255, wherein said singly negatively charged anion is selected from the group consisting of halogen ions,

hydroxide ions, hydrogen carbonate ions, and nitrate ions.

257. (Previously Presented) An explosive according to claim 255, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

258. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MXSiX'H_n$ wherein n is 1 or 2, M is an alkali or alkaline earth cation, X and X' are each either a singly negatively charged anion or a doubly negatively charged anion, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

259. (Previously Presented) An explosive device according to claim 258, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

260. (Previously Presented) An explosive according to claim 258, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

261. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $SiO_2H_n$ wherein n is an integer from 1 to 6 and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

262. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MSiO_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

263. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $MSi_2H_n$ wherein n is an integer from 1 to 6, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

264. (Previously Presented) An explosive device according to claim 205, wherein the compound has the formula $M_2SiH_n$ wherein n is an integer from 1 to 8, M is an alkali or alkaline earth cation, and the hydrogen content $H_n$ comprises at least one increased binding energy hydrogen species.

265. (Previously Presented) An explosive device according to claim 205, wherein the compound is greater that 50 atomic percent pure.

266. (Previously Presented) An explosive device according to claim 205, wherein the compound is greater that 90 atomic percent pure.

267. (Previously Presented) An explosive device according to claim 205, wherein said at least one other element comprises at least one selected from the group consisting of a proton, ordinary hydrogen atom, ordinary hydrogen ions, ordinary hydrogen molecules, ordinary hydrogen molecular ions and ordinary $H_3^+$ ion.

268. (Previously Presented) An explosive device according to claim 205, wherein said at least one other element comprises at least one element selected from the group consisting of alkaline earth metals and alkali metals.

269. (Previously Presented) An explosive device according to claim 268, wherein said element comprises lithium or lithium ion.

270. (Previously Presented) An explosive device according to claim 205, wherein said at least one other element comprises at least one element selected from the group consisting of organic compounds.

271. (Previously Presented) An explosive device according to claim 205, wherein said at least one other element comprises at least one element selected from the group consisting of semiconductors.

272. (Previously Presented) An explosive device according to claim 205, wherein said compound comprising:

(a) at least one neutral, positive or negative increased binding energy hydrogen species having a binding energy:

(i) greater than the binding energy of the corresponding ordinary hydrogen species, or

(ii) greater than the binding energy of any hydrogen species for which the corresponding ordinary hydrogen species is unstable or is not observed because the ordinary hydrogen species' binding energy is less than thermal energies at ambient conditions, or is negative; and

(b) at least one other element, wherein said increased binding energy hydrogen species is selected from the group consisting of $H_n$, $H_n^-$, and $H_n^+$, where n is an integer of 1 to 8, and n is greater than 1 when H has a positive charge.

273. (Previously Presented) An explosive device according to claim 272, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is

represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (b) hydrogen atom having a binding energy greater than about 13.6 eV; (c) hydrogen molecule having a first binding energy greater than about 15.5 eV; and (d) molecular hydrogen ion having a binding energy greater than about 16.4 eV.

274. (Previously Presented) An explosive device according to claim 272, wherein the increased binding energy hydrogen species comprises a hydride ion having a binding energy of about 3.0, 6.6, 11.2, 16.7, 22.8 29.3, 36.1, 42.8, 49.4, 55.5, 61.0, 65.6, 69.2, 71.53, 72.4, 71.54, 68.8, 64.0, 56.8, 47.1, 34.6, of 19.2.

275. (Previously Presented) An explosive device according to claim 272, wherein said increased binding energy hydrogen species is a hydride ion having a binding energy greater than the binding energy of the corresponding ordinary hydride ion for p = 2 up to 23 in which the binding energy is represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge.

276. (Previously Presented) An explosive device according to claim 272, wherein said increased binding energy hydrogen species is selected from the group consisting of (a) a hydrino atom having a binding energy of about 13.6 eV/$(1/p)^2$, where p is an integer greater than 1; (b) a hydride ion having a binding energy represented by

$$Binding\ Energy = \frac{\hbar^2\sqrt{s(s+1)}}{8\mu_e a_0^2\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^2} - \frac{\pi\mu_0 e^2\hbar^2}{m_e^2 a_0^3}\left(1+\frac{2^2}{\left[\frac{1+\sqrt{s(s+1)}}{p}\right]^3}\right)$$

where p is an integer greater than 1, s = ½, ħ is Plank's constant bar, $\mu_0$ is the permeability of vacuum, $m_e$ is the mass of the electron, $\mu_e$ is the reduced electron mass, $a_0$ is the Bohr radius, and *e* is the elementary charge; (c) a trihydrino molecular ion, $H_3^+(1/p)$, having a binding energy of about 22.6/$(1/p)^2$ eV; (d) a dihydrino molecule having a binding energy of about 15.5/$(1/p)^2$ eV; and (e) a dihydrino molecular ion with a binding energy of about 16.4/$(1/p)^2$ eV.

277. (Previously Presented) An explosive device according to claim 276, wherein p is 2 to 200.

278. (Previously Presented) An explosive device according to claim 276, wherein p is 2 to 24.

279. (Previously Presented) An explosive device according to claim 276, wherein said increased binding energy hydrogen species is negative.

280. (Previously Presented) An explosive device according to claim 205, wherein said source of hydrino hydride ion comprises a source of 2 or more different hydrino hydride ions.

281. (Previously Presented) An explosive material comprising:

a compound comprising hydrino hydride ion and at least one other element, wherein the hydrino hydride ion has a binding energy of about 0.65 eV, which upon decomposition produces a hydrogen molecule having a binding energy of about 8,928 eV, and

a means for detonating the compound.

282. (New) A method for the explosive release of energy according to claim 1, further comprising rapidly mixing the hydrino hydride with an acid or super-acid.